European Commission

The EU Framework Programme for Research and Innovation

HORIZON

Topics for WP 18-20 (RIA, IA, PCP/PPI + EJP,CSA & Prizes)

Research and Innovation

Timetable for WP 2018-20

Year	SC1 Work Programme 2018-2020
2016	- SC1 AG meetings (Q1/Q2) – **AG report circulated on 8/6/2016**) - Stakeholder consultation (Q1/Q2) based on AG report – **7'16** - Consultation MS via PC + input on national research (Q2/Q3)- **7'16** - Joint PC and AG **meeting:21-22 September 2016** - Scoping papers and Strategic Programming documents (Q3) - **PC 14'12** Presentation & discussion - Main WP 18-20 topics (Vs.1)

2017	- **PC 16'2** Presentat° & discuss° - Main WP 18-20 topics+CSA (Vs.2)
	  - 28'2 Feed Back on slides to Commission (+ 12 days)
	  - 23'3 Full WP (Vs.3) to PC for discussion (~~1~~**2** Weeks before PC)
	- **PC 6'4** Presentat° & discuss° - Main WP 18-20 Full (Vs.3)
	- **PC 18'5** Presentat° & discuss° - Main WP 18-20 "Final" (Vs.4)
	- Summer 2017 Interim Evaluation of Horizon 2020
	- September 2017 : Formal approval by SC1 PC
	- Adoption on the WP 2018-20 (Q4) (should incorporate the results of the Horizon 2020 interim evaluation)

2018	- Adoption of financial decision for 2019 (Q2)
2019	- Adoption of financial decision for 2020 (Q2)

"Better health and care, economic growth & sustainable health systems" – DG RTD RIA, IA, PCP/PPI + EJP

Main change

1. Understanding causative mechanisms in comorbidities – RTD – RIA

Scope:

- Identify and validate the causative mechanisms of physical and mental comorbidities
- Integrate fundamental, pre-clinical and/or clinical research
- Maximise the use of available data, registries, cohorts and biobanks
- Include different etiological models of comorbid conditions: from disease(s), treatment(s), risk factor(s) - common or correlated, or any other pathways
- Address diverse types of comorbidities: mental and physical disorders, communicable and non-communicable diseases

Impact:

- Elucidate the underlying pathophysiological mechanisms of comorbidities
- Enable new directions of clinical research to improve diagnosis, prevention, therapy and management of comorbidities.
- Establish biomarkers for more accurate and earlier diagnosis as well as monitoring (where relevant)

European Commission

2. Endocrine disrupters – research for better regulation and improved understanding of health effects – RTD – RIA

Scope:

- New tools, methods or models to improve and harmonise screening and testing protocols for risk and hazard assessments, including high-throughput and *in silico* approaches
- Research on adverse outcomes and pathways
- Focus on regulatory needs, e.g. tests for the thyroid axis, female reproduction, non-genotoxic carcinogens and developmental neurotoxicity.

Impact:

- Novel endocrine disrupter assay candidates validated for regulatory use
- Enhanced international cooperation and support for the OECD work
- Contribution to the development of an international strategy and guidelines

European Commission

Main change

4. Systems approaches for the discovery of combinatorial therapies – RTD – RIA

Scope:

- Proof-of-concept of combinatorial therapies tailored to the needs of individuals or stratified patient groups
- Focusing on marketed/approved therapeutic interventions or currently in late stages of development
- Integrate multidimensional and longitudinal patient data using systems approaches

Impact:

- New concepts for combinatorial therapies for complex diseases
- Improved cost-effectiveness in comparison to established clinical practice with monotherapies
- Building the base for personalised medicine

European Commission

5. Exploiting research results and potential of the human microbiome for personalised prediction and prevention of disease – RTD – RIA

Scope:

- Integrate and exploit existing microbiome data and other data (including -omics, lifestyle, environmental data, etc.) to develop personalised medicine approaches.
- Generate new relevant microbiome data to fill in existing knowledge gaps.
- Develop clinical tools for disease prediction and prevention.

Impact:

- Identify microbiome functionalities and test clinical tools for personalised prediction and prevention.

European Commission

6. Climate change and the early detection of emerging infectious diseases - RTD – RIA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

European Commission

7. Mental health in the workplace – RTD – RIA

Scope:

- To develop tools for early detection and effective interventions to promote mental health in the workplace and assess their (improved) health and socio-economic impacts, including effects on the workplace
- Co-morbidities in mental and physical health, stigma, the introduction of disruptive technologies and business models are important elements to consider, as well as gender and age aspects.

Impact:

- Broadened evidence base of effective interventions to promote mental health in the workplace, improved basis for policy making.
- Improved mental health and reduced sickness absence in the EU working population
- To contribute to the EU impact towards the Sustainable Development Goals 3, 8 and 10.

European Commission

~~8. Moving towards risk-based screening strategies – RTD – RIA~~

~~Scope:~~

- ~~Develop screening interventions, enabling better disease outcomes for populations or groups at high risk of developing disease.~~
- ~~Stratification by health risk factors or determinants such as population, geographic or socio-economic level should be considered.~~
- ~~Provides new opportunities to develop targeted screening interventions that could balance efforts towards identifying subpopulations at high risk.~~
- ~~Capitalise on personalised medicine, novel technology and new types of data to identify subpopulations at high risk.~~

~~Impact:~~

- ~~Establish effective and cost effective targeted screening methods for high-risk populations or groups.~~
- ~~Demonstrate potential for improved health outcomes and equity.~~

European Commission

9. The Human Exposome Project: a toolbox for assessing and addressing the impact of environment and climate change on health – RTD – RIA (1)

Scope:

- A **toolbox** () of new approaches, technologies and methods to characterise individual exposure to multiple environmental stressors across the life course, such as:
  - sensors that combine external exposure and health data
  - integration of external and internal (cross-omics) exposome data
  - data mining tools, high-performance computing and long-term, shared data infrastructure
- Proof-of-principle **case studies** () using the exposome approach to assess the role of the environment in non-communicable diseases in populations and develop **interventions** at population level to prevent risks , e.g.:
  - Health risks related to urban stressors, lifestyle and diseases
  - Health impacts amplified by climate change
  - Health risks related to occupational factors

European Commission

9. The Human Exposome Project: a toolbox for assessing and addressing the impact of environment and climate change on health – RTD – RIA (2)

Impact:

- Better prediction of the burden of diseases and disease risk related to the environment through new knowledge on the influence of external exposures, enabling preventive actions and better regulations
- Innovation in tools and technologies for internal and external exposure assessment - a toolbox enabling policy makers to continuously include new knowledge in the policy making processes
- Evidence on the health benefits of interventions to mitigate or adapt to risks, including the impact of actions in other policy domains than health
- Contribution to the Sustainable Development Goals 3 and 13.

European Commission

10. Rare Disease Joint Programme Co-Fund – RTD – EJP

Scope:

- A Research and Innovation (R&I) programme for new diagnostic means, discovery and validation of biomarkers, animal models, registries, clinical trials, socio-economic studies, etc., supplemented by strategic coordination and management.
- A virtual platform for rare disease (RD) information, data, samples, tools and standards building on existing resources.
- Build capacity to improve R&I potential (training and support on research data management, best practices, HTA processes, etc.).

Impact:

- Decrease the fragmentation of RD expertise and research resources and improve uptake of research results.

European Commission

11. Stratified host-directed approaches to improve prevention or treatment of infectious diseases – RTD – RIA

Scope:

- Concepts also beyond traditional drug or vaccine development to address antimicrobial drug resistance and failure to treat or prevent major infectious diseases.
- Utilization of knowledge on host factors, immune-modulators or host-pathogen interaction to strengthen the response to treatment or prevention + use of cohorts and stratification of patients.
- Late pre-clinical or early clinical research to support proof-of-concept.
- Development of novel interventions such as personalised vaccination against important infectious diseases.

Impact:

- Increase the effectiveness of treatment and prevention.
- Contribute to the EU impact towards the Sustainable Development Goal 3.
- Contribute to the new EC action plan on AMR

European Commission

12. New anti-infective agents for prevention or treatment of neglected infectious diseases – RTD – RIA

Scope:

- Bridge the gap between late preclinical and early clinical (up to phase 1) development of already existing lead candidates of drugs or vaccines against Neglected bacterial and parasitic diseases (neglected viral diseases excluded from topic).
- Multidisciplinary platforms (academic and industry research teams, from European and disease-endemic countries), with the capacity to exploit existing experience and propose innovative solutions addressing several pathogens are particularly encouraged.

Impact:

- Development of novel treatments or vaccines for NIDs → SDGs 1,3,5,10
- Build up the pipeline of candidates available for testing within EDCTP2
- Contribute towards the objectives of the Communication on Infectious Diseases ()

European Commission

13. Novel patient-centred approaches for survivorship, palliation and end-of-life care – RTD – RIA

Scope:

- Asses the effectiveness of interventions to relieve symptoms and suffering caused by life-threatening chronic diseases, long-term treatment side effects in patients and survivors, or symptoms that occur at the end of life.
- Randomised clinical trials and/or observational studies of new or improved patient-centred interventions building on evidence-based stratification of the targeted patient population.
- Assessing feasibility of integrating novel interventions in current palliative and/or survivorship care regimes and health care settings.

Impact:

- Reduce suffering or improve well-being of patients in need for palliative, end-of-life or survivorship care.
- Improve quality and efficiency of palliative or survivorship care services

European Commission

14+15. Global Alliance for Chronic Diseases (GACD) – RTD – RIA

Scope:

Intervention scaling up (subject to GACD Board decision)

- Reaching the SDG goals for NCDs will request the application of successful interventions at large scale.
- Scaling up successful local interventions has proven extremely difficult, especially due to the variety and heterogeneity of local systems and contexts.
- Successful local interventions must be tailored/adapted to those contexts including during the scaling up phase.
- Focus to be agreed by GACD Funders, but probably hypertension.

Minor change

16. New therapies for Non Communicable Diseases – RTD – RIA

Scope:

- Develop novel therapies (pharmacological only~~as well as non-pharmacological~~) or optimize available therapies (e.g. repurposing~~, technology~~) for NCDs.
- Focus on clinical trial(s), supported by proof-of-concept of clinical safety and efficacy in humans and preclinical research
- First-in man studies should be completed.

Impact:

- New or optimized NCD therapies with the potential to improve clinical practice

17. Innovation platforms for advanced therapies of the future – RTD – RIA

Scope:

- Create knowledge and develop exploitation potential around innovative concepts for advanced therapies
- Overcome bottlenecks holding back the field, such as gene delivery, off-target effects, immunogenicity, cell tracking
- Investigating proof of concept in animal models or first-in–man studies, safety, efficacy, characterisation, refinement and manufacturing of the product

Impact:

- Strengthen competitive position of European advanced therapy research and development
- Improve the perspectives for treating diseases and conditions of significant public health importance with advanced therapies
- Technological progress in the advanced therapy field

Moved from Area 1.1

3. Regenerative medicine: from new insights to new applications – RTD – RIA

Scope:

- Translational research to develop regenerative processes towards the ultimate clinical goal of addressing an unmet clinical need of public health importance
- Not including devices or pharmaceuticals alone
- Focus on any stage or stages of the innovation chain from early testing of regenerative mechanisms to pre-clinical research, proof of concept to first-in-man trial

Impact:

- Establish the basis of potential new regenerative therapies
- Strengthen Europe's position in translational regenerative medicine
- Address unmet needs of public health importance

New Topic

18bis. *EU-CELAC collaboration for research on non-communicable diseases – RTD – RIA*

Scope:

Placeholder (subject to discussions with MS and LAC)

- To support EU-CELAC research networks addressing common healthcare challenges and supporting data sharing and capacity building, in the area of non-communicable diseases

Impact:

- Contribution to the SDG goals for non-communicable diseases

European Commission

19. Healthcare interventions for the management of the elderly multimorbid patient – RTD – RIA

Scope:

- Proposals should focus on clinical studies to improve the management of multimorbid elderly patients.
- The approach should be holistic and multidisciplinary, including non-pharmacological treatments, with a strong focus on improving the quality of life of the elderly patient.

Impact:

- Reinforce evidence for interventions improving healthcare practice.
- Improved guidelines and policy recommendations for the management of multimorbid patients
- Establish new patient-oriented model of healthcare for the multimorbid patients

25. International flagship collaboration with Canada for human data storage, integration and sharing for developing personalised medicine approaches – RTD – RIA

Scope:

- Models that guarantee the interoperability of human health research data from different repositories and integrate –omics data and where relevant clinical research and lifestyle data.
- New or improved technologies for data harvesting, data discovery, and fast and efficient transfer of large datasets and data files.
- An international governance model for a data management and storage infrastructure compliant with the required data security and privacy.

Impact:

- Enable intensified sharing, reuse, collaboration and knowledge discovery in the health research field.

Minor change

26. Digital diagnostics – developing tools for clinical decisions integrating in vitro and in vivo diagnostics – RTD – RIA

Scope:

- Develop tools to support clinical decisions that will use information from the most relevant diagnostic means in a particular area.
- Integrate *in vitro* and *in vivo* diagnostics as appropriate taking into account the needs of healthcare practitioners.
- Proposals should be aligned with the objectives of **the** International Consortium for Personalised Medicine.

Impact:

- Improve the quality and sustainability of healthcare through more encompassing diagnosis and personalised treatments.

Minor change

27. Innovation Procurement: Next generation sequencing (NGS) for routine diagnosis – RTD – ~~PCP/PPI~~

Scope:

- Promote the implementation of NGS tests in routine diagnostics for personalised medicine, from a technical, clinical, organisational and/or economic point of view.
- Develop and implement NGS standards and quality assurance schemes.
- Develop tools and methods for data collection, management, analysis and interpretation of NGS results.

Impact:

- Strengthen the implementation of personalised medicine and thus contribute to more effective healthcare systems.

European Commission

28. New, animal-free regulatory test methods for human safety testing at the horizon of 2030 – RTD – RIA

Scope:

- Capitalise on advances in all fields of science and technology to extend understanding of complex biological pathways of toxicological relevance for further development and validation of routine non-animal approaches for toxicity testing of chemical substances
- "Read across" between chemical substances in different research & regulatory domains
- International cooperation with complementary initiatives

Impact:

- Effective animal-free test methods for regulatory acceptance
- Commercial exploitation of testing methods, asessment approaches, products, services
- Reduced use of laboratory animals in safety testing

European Commission

35. Demonstration pilots for implementation of Personalised Medicine in health care – RTD – RIA

Scope:

- Develop prediction, prevention or treatment solutions for major diseases with high burden for society based on the integration of a wide variety of data.
- Ensure coordination with national, regional or local authorities and help link different institutions (e.g., hospitals, public health authorities, payers, etc.).
- Engage partners at differing stages of introducing PM approaches.

Impact:

- Demonstrate the feasibility and the viability of personalised medicine in real-life settings and at a large scale.

36. HTA research to support evidence-based healthcare – RTD – RIA

Scope:

- HTA for health technologies with less established methods, combined use of health technologies, personalised healthcare
- HTA in disease areas with known challenges: key aspects of relative effectiveness assessment (incl. patient-relevant health outcomes and appropriate outcome measures)
- Use of real-world data in HTA (e.g. patient registries, routine health data) to assess effectiveness post-launch

Impact:

- New or improved methodological approaches and frameworks
- Methodological quality of HTA strengthened by collaboration of researchers from academia, HTA bodies and the broader evidence-based healthcare community
- Contribute to strengthening EU cooperation on HTA and its impact on evidence-based healthcare

Minor change

37. Implementation research for maternal and child health – RTD – RIA

Scope:

- Focus on first 1000 days of life (conception to 2y)
- New interventions (including introduction of new approved technologies) or scaling-up of interventions, for uptake in health systems and services ~~– no pre-clinical or clinical research~~
- Integrating care: e.g. valuing interdependent relationship of mother & child, communicable and non-communicable diseases (e.g. diabetes), prevention & treatment, physical & mental health
- Consider context, equity, end-users
- Specific attention for collection of quality data

Impact:

- Evidence for policy: Guidance for ensuring routine quality care for pregnant women, neonates and children up to 2y of age
- EU Contribution towards the Sustainable Development Goals 3 and 5~~, 8 and 10*~~.

European Commission

38. Using pre-commercial procurements and public procurement of innovative solutions in health care systems to

- reduce the risk of hospital-acquired infections

and/or

- improve integrated care

RTD – PCP or PPI

European Commission

40. Boosting the translation of results of health research into validated, innovative applications– RTD – RIA

Scope:

- All areas of health research
- Previous funding from any theme/programme/pillar of FP7 or H
- Consortium does NOT need to be identical to previously funded project, but able to exploit results
- Reach final development stage before innovation enters into production, reach the market and/or patients (drug development: completed phase I studies at time of application!)
- Strong involvement of SMEs, small consortia, expected project duration around 3 year

Impact:

- Translation of knowledge into applications, innovative products and services
- Increase in 'results' from previous FP7 and H projects/actions
- Availability of innovative products and services for patients and health systems

"Better health and care, economic growth & sustainable health systems" – DG RTD CSAs and Prizes

Minor change

CSA 1. Actions in support of the International Consortium for Personalised Medicine – RTD – CSA

Scope: Support the implementation of the IC PerMed Action Plan including actions such as:

- Support the building of PM networks with third countries and between regions in different European countries. E.g. between remote or sparsely populated regions and regions harbouring a critical mass of medical and PM expertise.
- Develop ~~a~~ new clinical trial designs for PM that facilitate ~~the~~ approval by regulatory and reimbursement authorities.
- Develop health and pharmaceutical economic models for PM.

Impact:

- Support the implementation of the IC PerMed goals. Strengthen links between regions setting up or planning ~~centralised~~ personalised medicine healthcare approaches.

Minor change

CSA 2. Promoting~~Preparing for~~ data sharing in infectious disease – RTD – CSA

Scope:

- Create a favourable data sharing environment for early detection of, and response to, infectious disease outbreaks
- Provide sustainable online tools for the rapid organisation, analysis and accessibility of a range of data types
- Build on existing investments at EU and international level that have supported data sharing actions, align with FAIR principles and Open Science strategy

Impact:

- Solution for timely sharing of data through tools that will enable stakeholders to control infectious disease outbreaks.

European Commission

CSA 3 . Towards the creation of clinical research networks for infectious diseases – RTD – CSA

Scope:

- To establish a business model for clinical research network across Europe to manage and perform clinical trials encompassing study design, execution and reporting. The network should develop and allow for innovative research approaches and enable flexibility in responding to unpredictable events and signals. It should also provide clear and direct access to stakeholders including academic organizations, SMEs and larger industry to perform clinical studies. The network should support the development of a business plan, the operational capacity and establishment of the required infrastructures and also build on existing relevant programmes and platforms (e.g. COMBACTE and PREPARE)

Impact:

- Advancement and improvement of coordination of clinical research networks for infectious diseases in Europe and beyond.
- to improve the diagnosis, prevention and treatment of infections and to better respond to infectious disease threats
- Contributing to the Commission's new AMR Action plan and the G7

European Commission

CSA 4. Innovation in health care - towards using pre-commercial procurement and public procurement of innovative solutions in health care systems RTD – CSA

Scope:

- Support a European-wide consortium of health care providers and public procurers in the healthcare sector that define together unmet procurement needs to implement innovative solutions in health care.
- The consortium should prepare procurement topics to conduct:
  - a) A PPI to implement rapid diagnostic tools for infectious diseases in clinical practise (at least 1 topic)
  - b) One or more PCPs to develop innovative solutions for integrated health care (at least 1 topic)

Impact:

- Create a network of health care providers and public procurers in the health care systems to identify the stakeholders and specifications for a strategy to launch procurement for innovative diagnostics for infectious diseases*, and for innovative solutions in integrated care.
- Prepare innovation procurement topics

*Will be included in the 2017 Action Plan on AMR

European Commission

CSA 5. Strengthen Regulatory Sciences and support for successful regulatory Scientific Advice – RTD – CSA

Scope:

- Establishing an inventory of existing support activities for regulatory Scientific Advice and Protocol Assistance in Europe
- Establishing training programmes to strengthen Regulatory Sciences
- Supporting academic groups for successful regulatory Scientific Advice and Protocol Assistance based on best practices

Impact:

- Improved knowledge of Regulatory Sciences among academic clinical researchers
- Improved direct (regulatory) impact of results from academic clinical research to ensure that innovations reach patients rapidly

European Commission

CSA 6. Building international efforts on cohorts – RTD – CSA

Rationale:

- Europe is home to a vast number of large cohorts.
- Several large cohorts have also been developed in various parts of the world.

Scope:

- The exploitation of these cohorts could be maximized by bringing them together.
- Coordination of large cohorts globally would enable better stratification of patients for improved disease prevention and management strategies.

Impact:

- Enable new types of discoveries
- Validate clinically relevant breakthroughs and underpin personalised medicine
- Optimise the use of cohorts in defining/improving clinical practice and public health policy

Minor change

CSA 7. Coordinating European brain research and developing global initiatives – RTD – CSA

Rationale:

- Many large brain research initiatives have been created in recent years
- The EC has spent 4.2 Billion in brain research in the last 10 years

Scope:

- Create a platform/hub to bring EC brain projects together in clusters, including the Human Brain Project (HBP)), JPND, NEURON and IMI
- Enhance the open science agenda
- Establish a global frame to enhance international collaboration between large Brain initiatives in order to maximize their exploitation

Impact:

- To foster cross-fertilisation and cooperation among EU-funded projects in specific sectors or other relevant themes.
- Better exploitation of large investment in brain research, including infrastructures such as HBP
- Enable and accelerate brain research breakthroughs
- Provide global neurosciences community access to top research facilities

European Commission

CSA 8. Setting the Priorities for the European Environment and Health Agenda – RTD – CSA

Scope:

- Coordination amongst Horizon 2020 projects funded in different areas and policy actors in environment and health
- Identify policy areas in need of scientific support for the next decade
- Develop a common research and innovation strategy and agenda
- Establish state-of-the art based guidelines for health impact assessment of environmental factors applicable across sectors

Impact:

- Provide input for the environment and health R&I objectives for the next framework programme
- Provide support for the 7th Environment Action Programme and the WHO environment and health process
- Raise the visibility of the Horizon 2020 contribution to the European environment and health policy process

Minor change

CSA 9. Data integration and data- driven in-silico models for enabling personalised medicine - a European standardization framework– RTD – CSA

Scope:

- Identify best practices for data sharing and integration, data analytics and data-driven *in-silico* models in EU collaborative projects
- Recommend flexible & adaptable standardization guidelines to maximize the use of health data
- Interoperability with standards used by industry and regulatory authorities

Impact:

- Harmonization of data integration and in-silico models frameworks in EU health research
- Accelerated use of big data in translational and clinical research
- Contribution to the sustainability of health research data

CSA 10. Improving EU-13 participation in EU-supported health research programmes – RTD – CSA

Placeholder: depends on the evaluation results of topic SC1-HCO-08-2017

Scope:

- Mapping of the main public and private resources and initiatives in healthcare research and innovation in EU-13
- Mapping of career pathways in EU-13 health R&I area, benchmarked to the EU-15
- Measures tackling brain drain and establishing attractive working conditions for young talents in healthcare research and innovation
- Governance (strategic intelligence, knowledge transfer, international collaboration, capital investment, training) of EU13 research institutions and good practices

Impact:

- Raise the profile of EU13 research institutions and scientific leaders
- Comprehensive, public and sustainable platform available to the ERA community active in healthcare research and investment
- Higher participation and success rate of EU13 in EU-supported projects

European Commission

CSA 11. Strategic collaboration in healthcare research and innovation between EU and China – RTD – CSA

Scope:

- Reinforce the R&I dialogue with China in view of further developing cooperation
- Identify common strategic health R&I challenges, whose solution may benefit from close cooperation between EU and China
- Raise awareness about EU health R&I programme to Chinese researchers

Impact:

- Development of a platform between EU and China facilitating a constant dialogue on addressing common health R&I challenges
- Increased cooperation between EU and China on health R&I strategic topics
- Higher participation and success rate of Chinese participants in SC1 and of European researchers to Chinese health research programmes
- Optimising the use of the Chinese co-fund mechanism to SC1 topics

"Digital transformation in Health & Care" – DG CNECT

RIA, IA, PCP/PPI

European Commission

18. Big data for monitoring health status and quality of life after the cancer treatment – CNECT - RIA

Scope:

- how to better acquire, manage, share, model, process and exploit big data to effectively monitor health status of individual patients, provide overall actionable insights at the point of care and improve quality of life after the cancer treatment.

Impact:

- Mapping comprehensive big data in a feasible and manageable way;
- Creating a network of knowledge by linking heterogeneous data sources;
- Providing better and faster means of high quality response to prevent or timely address development of new medical conditions and/or improve the quality of life;
- Providing the evidence base for the development of policy strategies;
- Improving quality of life after cancer treatment, strengthening personal confidence and enhancing employability.

European Commission

20. Personalised early risk prediction, prevention and intervention - CNECT – RIA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

European Commission

21. Adaptive smart environments in support of working and independent living in an ageing society – CNECT – RIA

Scope:

- Develop digitally enabled services and solutions leading to smart work environments for older adults, supporting them to remain involved in professional life
- *Trans-disciplinary research, ensure the understanding of user needs, safeguarding ethics, privacy, security and regulatory aspects*
- *Validation should take place in real settings, at work and at home*

Impact:

- *Independent living and quality of life of older persons compared to current state of the art, enabling older persons to stay involved in work life for longer*
- *Potential cost-effectiveness due to enhanced self-care, life-style, age-friendly work environments and socio-economic and economic benefits*

European Commission

22. International cooperation in digital solutions and robotics for independent living – CNECT – RIA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

European Commission

23. Large scale implementation of digital innovation for health and care in an ageing society – CNECT – PPI

Scope:

- Specify, purchase and deploy ICT based solutions for active and healthy ageing in the health and care field and contribute to the Scaling-Up Strategy of the European Innovation Partnership on Active and Healthy Ageing and Reference Sites;
- Target large-scale deployment of digital health and care solutions across different regions in Europe

Impact:

- Growing awareness on the successful use of public procurement to boost ICT innovation applied to active and healthy ageing, ultimately benefiting the growing ageing population across Europe;
- Contribution with data and experiences to addressing potential barriers (regulatory and other) to procurement of innovative solutions for active and healthy ageing.

European Commission

24. Piloting smart & trusted digital solutions for prevention & personalised health & care – CNECT – IA

Scope:

Pilot Area 1: Intelligent and personalised digital solutions for sustaining and extending healthy and independent living

User-led large scale pilots based on digital platforms extending healthy and independent living for individuals who are facing permanently or temporarily reduced functionality and capabilities

Pilot Area 2: Trusted big data and analytics for personalised early risk detection and intervention

User led large scale pilots based on digital platforms that provide trusted big data solutions for personalised risk detection, advanced health monitoring and early interventions against increased health and social risks

Impact:

- New systems and services with proven return of investment in terms of societal benefits, budget savings, or private sector gains
- Clear evidence of improved big data analytics and shorter time to market for new products and services resulting from data re-use and technology integration

European Commission

29. Accelerating the uptake of in-silico methods for testing medicines with dermatological use and cosmetic products – IA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

European Commission

30. Exploiting the full potential of in-silico medicine research for personalised diagnostics and therapies in cloud-based environments– CNECT – RIA

Scope:

- To develop and validate software tools and devices for diagnostic or treatment based on computational modelling and simulation applied in biology and physiology
- To use shared European infrastructures and e-infrastructures, building on existing capacity and expertise and linking with the European Open Science Cloud

Impact:

- Decision making in complex situations and a more precise and personalised disease management
- Translation of big and multi-disciplinary data into predictors for medical outcome
- Contribution to building the European Cloud vision and to opening access to research and clinical data

European Commission

31. Prototyping a cloud-based standardised Electronic Health Record service for Europe - CNECT – IA

Scope:

- Prototyping a cloud platform allowing the cross-border mobility of European patients data, offering to each European citizen the ability to build throughout their lifespan a comprehensive, easy-to-use and secure personal health record, constantly accessible and portable
- Provide a data-driven platform to help the research community to benefit from user generated data (Health, care and wellness)

Impact:

- Extend the healthcare service provision continuum across borders for patients
- Enable collection and re-use of large data sets for Research
- Explore legal aspects related to data portability, data donorship…

European Commission

32. Scaling up the univocal Identification of Medicinal Products - CNECT – IA

Scope:

- Foster the use and dissemination of the IDMP standards set to support the cross-border mobility of European patients by offering safer eDispensations across borders
- Support the standards implementation in national sources (and its possible linkage to a central EMA database) to allow the identification of locally available equivalent medicinal products

Impact:

- Extend the healthcare service provision continuum across borders for patients
- Ensure better quality of data, better usability of data for national agencies
- Enable identification of medicine to allow better patient safety, clinical trials and pharmacovigilance

European Commission

33. eHealth and care services - Innovation Procurement CNECT – PCP

Scope:

- Support the health and care service provider to procure the development and testing of digital services and processes that can facilitate the transition to integrated care models across health and social services and country-specific cross-institutional set-ups, including decentralised procurement environments.
- Address key challenges like patient empowerment, self-management and safety, chronic disease management, diagnosing, hospital logistics, skills and independent living.
- Early adoption and demonstration of the potential for scaling-up

Impact:

- Increased opportunities for solution uptake across European procurement markets
- Contribution to standardisation where relevant

European Commission

34. Toolkit for assessing and reducing cyber risks in hospitals and care centres to protect data/infrastructures – CNECT – RIA

Scope:

Development and implementation of innovative methods, tools, guidelines or best practices addressing the need for cybersecurity in hospitals e.g assessing vulnerability; innovative cybersecurity measures; identification and authentication in hospitals; cybersecurity certification of products, devices, services; standards for security-by-design.

Impact:

- Improved security of Health and Care services, data and infrastructures
- Continuity of hospital services;
- Increased patient trust and safety;
- Increased hospital staff awareness of cybersecurity risks and legal aspects of data -> reducing human errors.

European Commission

39. Large Scale pilots of personalised & outcome based integrated care – CNECT – IA

Scope:

- Large-scale pilots for deployment of personalised and replicable digital solutions dealing with Integrated Care in multidisciplinary environment
- Ensuring accuracy, reliability and security of data sharing at each step of data stream to increase recruitment of professionals and patients, whilst improving professionals' working conditions
- Designing outcome-based reliable and sustainable business models

Impact:

- Develop a common vision of technical prerequisites and framework to ensure users trust with regard to health and social data and information in IT supported environment
- Develop an evidence-based minimum data set (clerical and clinical) on key points of integrated care pathway
- Increase the efficiency of Health/Care systems and improve the patient's Quality of Life/Health status

"Digital transformation in Health & Care" – DG CNECT

CSAs

European Commission

CSA 13. Supporting investment in smart living environments for ageing well through certification – CNECT – CSA

Scope:

- Consolidation of knowledge from R&I projects (esp. large-scale pilots on IoT and other projects in independent living and ageing well) and initiatives regarding schemes for harmonisation, certification, labelling or other forms of identification of adequate smart living environments
- Development of a scheme and measures for adoption with stakeholders
- Build on working groups around the European Reference Framework on Smart Age-Friendly Housing

Impact:

- Agreed scheme for certification with potential for Europe-wide adoption
- Basis for investment decisions (both private and public) based on RoI
- Proof of increased investment into building stock fit for the longevity challenge (move from institutional care to home-based independent living model)

European Commission

CSA 14. Support for the large scale uptake of open service platforms in the Active and Healthy Ageing domain – CNECT– CSA

Scope:

- Analyse the use of open service platforms (OP) in the AHA domain, covering both open platforms and partly-open/proprietary platforms developed by industry, and also interactions between platforms
- Address the evolution in the further development and maintenance of the platforms as well as the use and sustainability of relevant OPs
- Develop and implement a methodology that monitors OP development, adoption and spread across Europe with relevant KPI's, factors that support or hinder the uptake of open platforms in Europe

Impact:

- Identification of the critical success factors of OP development, deployment, and spread;
- Evidence for the socioeconomic benefit of open service platforms;
- Increased knowledge on the differences and synergies between open platforms regarding features and their interoperability on different levels (data / information / applications / services)

CSA 15. Support to further development of international cooperation in digital transformation of health and care– CNECT– CSA

Scope:

- *Develop a roadmap for international cooperation which outlines key relevant research and innovation areas in digital solutions and services for active and healthy ageing (Focus US, Canada, Japan, South Korea, China)*
- *Take into account the European added value and identify relevant existing and emerging initiatives which can form the basis for such a cooperation*
- *Ensure that relevant stakeholders are engaged during the process through regional and international workshops*

Impact:

- *Stimulate increased international cooperation in research and innovation on digital solutions and services 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*

European Commission

CSA 16. eHealth and care services – support for policy, strategy and post R&D – CNECT – CSA

Scope:

- Create favourable framework conditions for cross-border Communities of Practice that assist the health & care research and innovation ecosystems
- Create capacities, promote, co-ordinate, collaborate with other innovation accelerators, accelerate and scale up European wide

Impact:

- More forward looking, concerted approach to develop common answers to the challenges faced by the health ecosystems
- Increased opportunities to address unmet needs
- Evidences of support for implementation aspects beyond the innovation procurement procedures
- Concrete preparation of a cross-border PCP for at least one shared common procurement need

European Commission

CSA 17. Support to a Digital Health and Care Innovation initiative and preparation for next framework programme – CNECT– CSA

- *The action shall support the further development of an ambitious European initiative on digital transformation of health and care, including preparation of further research and innovation activities beyond Horizon*
- *There is a need to support the engagement of relevant public and private stakeholders and initiatives (including at national level) to contribute to the definition and implementation of this initiative*

CSA 18. Raising awareness and developing training schemes on cybersecurity in hospitals CNECT – CSA

Scope:

Awareness raising and training of staff working in healthcare settings is of high priority in order to enforce the knowledge on information security processes and data protection procedures. 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.

Impact:

- Increased hospital staff awareness and knowledge of cybersecurity risks and legal aspects of data protection. Consequently, less human errors causing cybersecurity threats;
- Preventing cyber-attacks.

European Commission

CSA 19. Support to eHealth Innovation ecosystems in Europe – CNECT – CSA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

European Commission

CSA 20. Support for European eHealth Interoperability roadmap deployment – CNECT – CSA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

European Commission

CSA 21. Scaling up innovation for active and healthy ageing – CNECT – CSA

Scope:

- *Placeholder*

Impact:

- *Placeholder*

Horizon Prizes

Overview and lessons learned from experience

Can you crack the challenge?

Line Matthiessen, Acting Director, Directorate E Health, Research & Innovation DG, European Commission

What are Challenge Prizes?
(also known as Inducement Prizes)

Ask for the solution for a problem without defining the path how to reach it. Serve goals beyond the current state-of-the-art and require cutting edge solutions

„First-past-the-post" contest
Rewards the first one to solve the problem

„Best-in-class" contest
Runs until a specific deadline. The best solution will be rewarded

How do Challenge Prizes work?

1. A **technological or societal challenge**, for which no solution has been found, is defined; an award is promised for the delivered breakthrough solution

2. The **award criteria** give information about what the **solution** must be capable of **proving**

3. The **means to reach the solution are not prescribed,** leaving contestants total freedom to come up with the most promising and effective solution

Advantages of Challenge Prizes

1. Leverage: Attract investment in specific area

2. Simplification: Awarded for delivery of a result. No checks of inputs needed, only the outputs have to be checked

3. Result orientation: You pay only for results

4. Diversity, new talent and entrepreneurship: Lighter procedures reduce barriers to participation of young entrepreneurs or innovators, or start-ups

5. Public awareness: Attract more public awareness, interest and attention to an issue of concern

6. Innovation: Non-prescriptive as to how to achieve a goal. Trigger thinking out of box as opposed to mainstream

Business processes

1. Expert group to identify topic and establish essential rules for WP
2. Publish topic in WP ('other actions') with scope, essential rules and amount of prize(s)
3. Expert group to adopt Rules of Contest
4. Get approval of final Rules of Contest
5. Set up call (a Prize is organised as a call for proposals)
6. Create communication material
7. Organise evaluation (pool of experts, hearings)
8. Award ceremony

Added value of a prize – the story of CureVac

- Prize for rewarding the development of a **vaccine technology** that remains **stable in ambient temperatures**
- 2014: Prize winner **CureVac GmbH**
- 2015: The prize triggered and leveraged **follow-on investments** in CureVac GmbH with a commitment of $52 million (€46 million) by the **Bill & Melinda Gates Foundation**
- 2016: Additional fundings received in November 2015 (€110 million) and 2016 (€ 29,5 million), **now a joint stock company**

Possibility of co-funding a prize – the Birth Day Prize

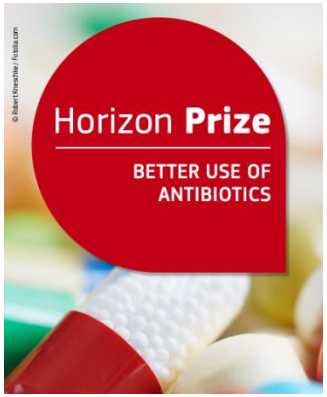
Steps to launch a JOINT PRIZE- the Birth Day Prize

- Expert meeting organised to discuss a possible topic(s)
- EC invited research funders (EU MS, US, BMGF ..) to explore the joint launch of a prize in the area of maternal and child health
- BMGF accepted
- MSD for Mothers was invited to join
- BMGF as well as MSD **agreed to use the EC system & rules for implementation**
- Experts developed further the topic and criteria, EC-BMGF-MSD validated
- **Agreement on budget as well as flow of funds, all included in Rules of Contest**

Help us promote the prize!

- Website: http://ec.europa.eu/research/horizonprize/index.cfm?prize=birthday
- Promotional material (flyers and posters) are available upon request.
- Contact: Horizon 2020 Helpdesk
- Follow us on social media: **#HorizonPrize**


European Commission
Horizon Prize
BETTER USE OF ANTIBIOTICS
AMR prize
Awarded
February 6, 2017
Research and Innovation



- This challenge prize offered a cash reward of

€1 million

- to the person or team who could most effectively meet the following challenge:

Develop **a rapid test** that will allow healthcare providers to **distinguish**, at the point-of-care, between patients with upper respiratory tract **infections that require antibiotics** and those that can be treated safely without them

- **Upper Respiratory Tract Infections** include pharyngitis, sinusitis, otitis and bronchitis

Horizon Prize BIRTH DAY

#HorizonPrize

Research and Innovation

European Commission

Prizes in SC1 WP 18-20

Prize 1 – Anti-microbial resistance – RTD - Inducement Prize

Possible scope:

A) Novel medical solution(s) capable of reducing or preventing (bacterial or fungal) infections in humans that are difficult to treat due to AMR

There is an urgent need to develop novel solutions that are capable of treating resistant infections, or preventing the development of such infections resulting in particular from medical interventions and surgical procedures.

or

B) Reducing the spread of AMR in the environment

Resistant microorganisms that are released into the environment pose a threat to human and animal health. There is an urgent need to develop novel solutions/interventions capable of reducing the spread of resistant microorganisms in the environment.

European Commission

Prize 2 - Surgical care in resource-poor settings – RTD – Inducement Prize

Rationale:

- Surgical conditions account for approximately 30% of the global burden of disease and have a huge social and economic impact.
- Currently, it is estimated that 5 billion people lack access to safe, affordable surgical and anaesthesia care when needed.
- This gap is estimated to have a cost of about € 1 trillion per year

Scope:

- The solution(s) should be safe, robust and affordable surgical approaches adapted to local context and infrastructure settings.
- It may comprise technology or equipment.
- Solutions should focus on conditions with the highest public health burden and be feasible even in the most resource-poor settings.
- Clinical effectiveness, robustness, user-friendliness and potential scalability of the proposed solution will need to be demonstrated

Impact:

- Contribute to addressing the most pressing surgical problems in low-resources settings.
- Furthermore, through reverse innovation, some solutions may also benefit higher income countries

Content Included

Prize 3 - Personalised medicine in health care - RTD – Recognition Prize

Possible scope:

- Different models of personalised medicine approaches have been tested by authorities in various places in Europe. These have included a varying number of participating institutions in a particular location, city or region. The aim of this recognition prize is to assess different examples of these models and to highlight the ones that have shown successful real-life application of PM.

Impact:

- Support active comparison of early examples of PM approaches with a view to demonstrate effectiveness of certain models that can be replicated elsewhere.
- Contribute towards implementation of the MS-led IC PerMed initiative.

To be included ONLY if agree-ment reached at G-7 level

Prize 4 - A novel solution that decreases incidence of classic neglected infectious diseases – RTD – Inducement Prize

Possible scope:

- A novel solution (of clinical, ecological, technological or managerial nature, or a combination of these) that results in **demonstrated decreased incidence** of new cases of one or more of the "classic" NIDs.
- Any solution must take full account of relevant social factors and have the potential of scaling up rapidly.
- Preventive Chemotherapy/mass drug administration is excluded from the prize scope (as it presents important limitations).

Impact:

- Development of novel interventions for NIDs → SDGs 1,3,5,10
- Contribute towards EU commitments in international political initiatives (G7 2015 and G7 2016, WHA Resolution WHA66.12 (2013), London Declaration (2012)

European Commission

Prize 5 - Novel tool(s) to limit the use of test animals in biomedical sciences and safety testing – RTD – Inducement Prize

Expected outcome:

Development of an innovative test method that will accelerate the transition from animal to non-animal based research or safety testing in any of the following areas:

- Safety assessment of chemicals
- Safety/efficacy/quality testing of vaccines/biologicals/drugs
- Understanding basic mechanisms of health, diseases or ageing
- Understanding the health effects of exposure
- Education and training

Minor change

Prize 6 - Implantation of smart medical devices to (re-) establish neural &/or neuronal function – RTD – Inducement Prize

Expected outcome:

Price for the successful (re-)establishment of neural or neuronal function through minimally-invasive surgical implantation of smart medical devices.

- Integrative approach building on recent advances in science and technology of active minimally-invasive implantable medical devices.
- Demonstrate functionality and superiority of such surgically incorporated devices
- Combination of innovative medical technologies and sophisticated surgical techniques
- ~~Innovative approaches for combining technological advances in different fields~~

ERA-NET Cofund in WP 18-20

ERA-NET New Approach (WP 18-20)

- Both evaluations, Joint Programming and ERA-NET Cofund, recommend to make support to in the context of the WP 2018-20 conditional to fulfilling clear conditions and criteria.
- Justification of Union intervention: Contribution to Horizon 2020 objectives, Relevance and positioning, Added value at EU and national level
- Budgetary issues and leverage effects:
  - Mature Networks: MS contribution ≥ 5 times EU funding (i.e. a Joint Call of at least ≥10m€ by MS + 5m€ EC + at least 15 m€ by MS in other calls)
  - New Networks: MS contribution ≥ 3 times EU funding (i.e. a Joint Call of at least ≥10m€ by MS + 5m€ EC + at least 5 m€ by MS in other calls)
- Expected impact at EU and national level

Potential ERA-NETs WP 18-20: Status @ Feb.2017

WP	Title of the suggested topic	TOTAL
WP 16-17	HCO 3 2017: ERA-NET To implement Strategic Research Agenda on Personalised Medicine	15 countries with commitment [+1], 10 countries supporting [=], ~13.0 M€ Committed [+ 1 m€ wrt Dec. 2016]
WP 18-20	ERA-NET titled 'Building sustainable and resilient health care models'	6 countries with commitment [+1], 10 countries supporting [+1], ~4.5 M€ Committed [+0.5 m€ wrt Dec. 2016]
WP 18-20	ERA-NET on Clinical Trials and Translational Research	8 countries with commitment [-2], 13 countries supporting [+5], ~7.8 M€ Committed [11 m€ in Dec. 2016]
WP 18-20	ERA-NET supporting JPI Neurodegenerative diseases	12 countries with commitment [-3], 15 countries supporting [+5], ~11 M€ Committed [-2.0 M€ wrt Dec. 2016]
WP 18-20	ERA-INFECT	Submitted by FR 23 January 2017 5 country with commitment, 3 country supporting, ~6 M€ Committed
WP 18-20	ERA-NET supporting JPI AMR	Submitted by SE 23 January 2017 3 country with commitment, 3 country supporting, ~4 M€ Committed
TOTAL Possibly Committed (M€)		~47 M€