



LifeTime call on European leaders:

Make EU health research count!

Promote and align efforts of the public and private sectors for innovative healthcare solutions

Biomedical research is at a turning point. Multidisciplinary approaches combining technologies across fields have the potential to revolutionize healthcare. As a source of both discovery and application, they will create an engine for economy and social growth. To coordinate such approaches and drive this revolution, European science needs long-term large-scale research initiatives. They will integrate efforts within the public and private sector and offer sustainable, transformative solutions. Such programs can only be built on the basis of a substantial budget under Horizon Europe. This budget – which is under threat – is urgently needed in its full amount. Only if the EU members commit to a strong Horizon Europe, will we be able to advance EU health research and position it at the forefront of international developments. Given that healthcare is one of the cornerstones for security, freedom, growth and development, we call for significant, coordinated and balanced European investment programs to release Horizon Europe's full potential.

On 31 October 2019, representatives from 40 companies across different sectors (multi-omics, single cell analysis, imaging, IT/data science, pharma/biotech and diagnostics) met with leaders in the core technologies of the LifeTime initiative in Basel. The event co-organized with the European Federation of Pharmaceutical Industries and Associations (EFPIA) was attended by 80 participants who now call EU members into action to ask for European investment programs covering the complete cycle of innovation from discovery

to implementation:

- supporting basic biomedical research
 - strengthening existing/developing new collaboration platforms between academia & industry
 - fostering clinical uptake of science-driven medical applications.
- LifeTime invites all additional interested parties to endorse 10 recommendations to make EU health research count by signing on the [LifeTime webpage](#).

We call for national and European programs that support:

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Substantial and coordinated EU and national investment towards understanding and treating human disease exploring molecular, cellular and systems levels

Read more ●●●
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Unifying framework fostering collaboration between academia and industry across multiple disciplines

Read more ●●●
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Joint projects between public and private sectors spanning the entire biomedical innovation cycle from discovery research, technology development, and implementation into hospitals and the healthcare industry

Read more ●●●
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Flexible new modes of stimulating innovation by facilitating cross-sectoral collaborations among industries accommodating the different development timelines and business models

Read more ●●●
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Comprehensive early technology adoption programs enabling rapid implementation at the EU level

Read more ●●●
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A network of centres of excellence that link multidisciplinary scientists with hospitals

Read more ●●●
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Digital environments to process large datasets and use advanced analytics/AI and machine learning with a scalability enabling health applications

Read more ●●●
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Training, education of clinicians and medical staff developing the skills to embrace new technologies

Read more ●●●
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Promotion of early disease interception with all stakeholders involved in therapy development and provision

Read more ●●●
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Public education to facilitate societal participation in the digital revolution in science-based medicine

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European scientists have recently pioneered many of the breakthrough technologies that have the potential to generate a paradigm shift in basic life and medical sciences. These include single-cell multi-omics, advanced imaging, artificial intelligence/machine learning and personalized disease models, such as organoids derived from patient cells. Development and integration of these technologies towards deeper molecular understanding of disease progression will provide a unique window of opportunity to fundamentally change healthcare in terms of disease detection, interception and treatment. Programs that foster collaboration between the public and private sectors spanning multiple disciplines are needed to transform discoveries into solutions that will improve the health of European citizens. Europe needs to adopt an end-to-end approach that sustains discovery research and builds bridges with industry and healthcare centres for its implementation. By becoming a leader in the translation of knowledge and technologies, Europe has the opportunity to spearhead health innovation worldwide. The alternative route, which implies following the footsteps of other global players, will impose greater expense to the European population in the long run. Therefore, we call for national and European programs that support:



Substantial and coordinated EU and national investment towards understanding and treating human disease exploring molecular, cellular and systems levels

To overcome the healthcare challenges facing Europe, we need to transform the current landscape of biomedical innovation, building on Europe's assets, in particular its world-class scientific community. Large-scale coordinated action plans between the EC and the Member States are needed to ensure that we stay at the forefront of multidisciplinary technology development and translation into clinical use. To be competitive at the international level, Europe must establish and propagate connections between existing research hubs. Attaining such critical mass will increase impact, accelerate progress, avoid duplication of effort, foster synergies with relevant international initiatives and ensure global competitiveness.



Unifying framework fostering collaboration between academia and industry across multiple disciplines

We need to stream-line pre-competitive interactions between academia and industry at the interface of computer science, single-cell biology, -omics, patient-derived disease modelling and personalized medicine. A supporting, common framework for research and exchange is needed. A large-scale collaboration platform across Europe could include umbrella agreements, regular physical meetings, dual training of young scientists in academia and industry, exchange programs, etc. Creating a dedicated European ecosystem is essential since the path to innovation is not linear and includes several feedback loops.



Joint projects between public and private sectors spanning the entire biomedical innovation cycle from discovery research, technology development, and implementation into hospitals and the healthcare industry

Building on the success of the Innovative Medicine Initiative and seizing the opportunities from the new health PPP that is being developed, joint projects between academia and industry from different sectors should be supported. They need to cover the cycle of innovation from high-risk research to higher Technology Readiness Levels (TRLs). Significant support is needed for basic single-cell biology, for multi-omics research, for organoid-based disease models and for the translation of computational approaches to single-cell biology data as well as their integration into clinical studies. Longitudinal studies based on clinical samples at the single-cell level will address pathologically relevant cellular heterogeneity, drug target identification, drug development and patient diagnostics.



Flexible new modes of stimulating innovation by facilitating cross-sectoral collaborations among industries accommodating the different development timelines and business models

To make major advances in the way we detect and treat diseases and to develop ground-breaking new therapies, cross-sectoral collaborations between small, medium and large industries with different development timelines and distinct business models is crucial. Additional organisations, such as academic institutions, hospitals and technology providers, would also be able to join these long-term networks that will combine the benefits of complementary actors, size and flexibility.



Comprehensive early technology adoption programs enabling rapid implementation at the EU level

To expedite the process of identifying, investing in and enabling emerging technologies developed in academic and industry labs, successful local initiatives such as tech watch programs and accelerator schemes (e.g. the VIB Single Cell Accelerator) should be scaled up and coordinated at the EU level.



A network of centres of excellence that link multidisciplinary scientists with hospitals

Close collaboration with hospitals and strong involvement of clinicians at the early stages of technology development are necessary for the successful adoption of new products/services into clinical workflows. Thus, besides research project-based collaborations, both physical and virtual centres need to be established. They will mobilize researchers and clinicians to collaborate on key technologies and their medical applications. Appropriate coordination will enable multi-site studies and standardization, necessary for the generation of high-quality molecular and medical data. This network of research/translation centres will also serve as hubs for innovation, promoting interactions across disciplines and strengthening the European ecosystem.



Digital environments to process large datasets and use advanced analytics/AI and machine learning with a scalability enabling health applications

There is an urgent need to ensure that methods developed for integrating molecular data and medical data from health records to predict clinical endpoints can be applied across Europe. Appropriate standards and infrastructure should be set-up to maximize interoperability. Regulation of AI in healthcare should make sure Europeans benefit from its potential without risks to their privacy, security or safety.



Training, education of clinicians and medical staff developing the skills to embrace new technologies

Capacity building in health systems is necessary, if not crucial, for successful innovation and technology implementation in the clinics. Retraining and education programs for today's and tomorrow's doctors and nurses are essential. Priorities and needs of the clinical workforce should also feedback to technology developers. Networks of experts with funding to promote lifelong learning would be desirable. New professional curricula for example in health information counselling will need to be established.



Promotion of early disease interception with all stakeholders involved in therapy development and provision

Breakthrough technologies will be shifting paradigms in the practice of medicine for years to come. As our scientific understanding increases, more effective disease interception will become possible for many conditions. To develop, approve and deliver therapeutic interventions that target early stages of disease progression, even before physical symptoms manifest themselves, can only be achieved through the cooperation of all necessary stakeholders (patients, regulators, health technology assessment bodies, payers, medical community, etc.). This goal requires that European research efforts are coordinated and redoubled, to ensure seamless interface between public and private efforts in healthcare.



Public education to facilitate societal participation in the digital revolution in science-based medicine

Changes in medicine due to the new breakthrough technologies will lead to earlier detection of diseases as well as more precise and effective therapies and thus higher cure rates. However many citizens may fear that their privacy, security or even safety is at risk. Patients will have access to more, but not necessarily correct, information through the internet and likely expect more involvement in treatment decisions that are tailored to their individual needs. Thus, public education investments will be crucial for acceptance and participation in this new way of delivering medicine.

About LifeTime

LifeTime, a new pan-European consortium of >90 leading research institutions supported by over 70 companies, aims to revolutionise healthcare by mapping, understanding, and targeting human cells during disease. Following two competitive rounds of peer review, LifeTime has received 1M€ from the EC to translate its vision into a roadmap for Europe. It will develop and integrate several breakthrough technologies (single-cell multi-omics, advanced imaging, machine learning/AI, personalised disease models). LifeTime is committed to promote better research value in and for Europe to advance understanding and early detection, interception, treatment of a wide range of diseases towards innovation and personalized medicine. For more information, please visit the [LifeTime website](#).