European Vision for Health and Wellbeing

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Content

- EU Vision for health and wellbeing
- EU4Health initiative
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- What may 6G bring to health and wellbeing?

Prof. Maziar Nekovee

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EU Visions for Health

"We will stop at nothing to save lives," said President von der Leyen, speaking to the European Parliament on 26 March 2020, the COVID-19 crisis is the biggest challenge the European Union (EU) has faced since the Second World War, and it has demonstrated that if each country tries to tackle pandemics on its own, the EU will be as weak as the weakest link. Every health system has struggled in tackling this crisis, and this has affected every citizen in one way or another.

Europe needs to give a higher priority to health, to have health systems ready to provide state of the art care, and to be prepared to cope with epidemics and other unforeseeable health threats in line with the International Health Regulations (IHR)[1]. Whilst the overall framework for preparedness, early

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on the establishment of a Programme for the Union's action in the field of health –for the period 2021-2027 and repealing Regulation (EU) No 282/2014 ("EU4Health Programme")

EU4Health

General Objectives

EUR 5.3 billion in current prices.

- Improve & foster health in the Union
- Protect people from serious cross-border health threats
- Improve access to medicinal products, medical devices, crisis-relevant products
- Strengthen health systems

European Commission

EU4Health (1)

The first work programme – general overview

- Sets priorities and actions for 2021.
- Budget is EUR 311 million in 2021.
- Builds on input received from:
  - ✓ **Member States** via the EU4Health Expert Group and the EU4Health Steering Group;
  - ✓ **Stakeholders** via a webinar, a full-day workshop and letters/emails.
- Will provide funding to EU Member States, health organisations and NGOs.
- In form of grants, prizes, procurement and "other" forms in compliance with the Financial Regulation.

European Commission

EU4Health (2)

The first work programme – strands

The programme is structured under four overarching “strands”:

1) Crisis preparedness
2) Disease prevention
3) Health systems and health workforce
4) Digital

With cancer as a transversal strand

European Commission

EU4Health (3)

Crisis preparedness strand

- **Possible priorities & actions for 2021:**
  - Support action to mitigate shortages of medicines and improve security of supply;
  - Communicable Diseases – surveillance and early detection;
  - 2017 EU AMR One Health Action Plan;
  - EU Immunisation initiative;
  - EU Preparedness: Plan, country-profiles platform, interregional elements and ECDC support, risk assessments;
  - HERA preparatory actions.
- **Indicative budget for the strand:** +/- EUR 100 million

EU4Health (4)

Disease prevention strand

- **Possible priorities & actions for 2021:**
  - Prevention of non-communicable diseases and related risk factors;
  - Cancer – Saving lives through sustainable cancer prevention;
  - Cancer – Improving early detection of cancer;
  - Cancer – Ensuring access to high standard in cancer diagnosis and treatment;
  - Cancer – Improving the quality of life for cancer patients;
  - Enhanced prevention, testing and linkage to care in communicable diseases.
- **Indicative budget for the strand:** +/- EUR 100 million

European Commission

EU4Health (5)

Health systems & healthcare workforce strand

- **Possible priorities & actions for 2021:**
  - Reforming and strengthening health systems;
  - Forecast and planning for health workforce;
  - Digital collaboration and synergies between EU decentralised agencies and DG SANTE;
  - Strengthening the implementation of legislation on blood, tissues, cells and organs and cooperation between national authorities and professional sector associations;
  - Implementation of pharmaceutical legislation and Pharmaceutical Strategy;
  - Implementation of Medical Device and In Vitro Diagnostics Regulations;
  - Health Technology Assessment preparatory actions;
  - Contribution to the Partnership European Observatory of Health systems and Policies;
  - Enhanced European Reference Networks;
  - Setting up an EU health system resilience testing and support programme
- **Indicative budget for the strand:** +/- EUR 70 million

European Commission

EU4Health (6)

Digital strand

- **Possible priorities & actions for 2021:**
  - Establishment of European Health Data Space – primary use;
  - Establishment of European Health Data Space – secondary use;
- **Indicative budget for the strand:** +/- EUR 35 million

European Commission

5GPPP Projects (1)

5G-HEART (validation trials) focuses on the vital vertical use-cases of healthcare, transport and aquaculture.

In the health area, 5G-HEART will validate pillcams for automatic detection in screening of colon cancer and vital-sign patches with advanced geo-localization as well as 5G AR/VR paramedic services. In the transport area, 5G-HEART will validate autonomous/assisted/remote driving and vehicle data services. Regarding food, focus will be on 5G-based transformation of aquaculture sector (worldwide importance for Norway, Greece, Ireland).

5G-HEART KPI validation ensures improved healthcare, public safety, farm management and business models in a 5G market, stimulating huge business opportunities within and beyond the project.

5GPPP Projects (2)

5G-TOURS deploys full end-to-end trials to bring 5G to real users for thirteen representative use cases. The project provides efficient and reliable close-to-commercial services for tourists, citizens and patients in three different types of cities: (i) Rennes, the safe city where e-health use cases will be demonstrated; (ii) Turin, the touristic city focused on media and broadcast use cases; and (iii) Athens, the mobility-efficient city that brings 5G to users in motion as well as to transport-related service providers.

5G-TOURS will enable different capabilities such as network slicing, virtualisation, orchestration or broadcasting as well as additional features developed by the project to bring more flexibility and improved performance.

The ambition is to fully demonstrate pre-commercial 5G technologies at a large scale, showing the ability of the 5G network to meet extreme and conflicting KPIs while supporting very diverse requirements on the same infrastructure.

WG Enabling Technologies (1)

RATIONALE AND AIMS OF THE WG

A key role of the NeworldEurope is to engage with a range of stakeholders pertinent to future communication networks and services.

Previously these open collaborations have mostly taken place in its Expert Advisory Group and in its SME Working Group

We are aiming extend this engagement to the vertical sectors:

1. Focus on roadmaps, future/long-term requirements, technology and research aspects rather than prototypes products and near-term deployment
2. Extend the discussion and engagement globally
3. Focus on technology enables and disruptive business transformation aspect towards 2030, including beyond 5G/ 6G

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WG Enabling Technologies (2)

Chairs: Maziar Nekovee University of Sussex, Raffaele de Peppe TIM

Vice Chairs: *Xueli An Huawei, Valerio Frascolla Intel*

Task forces

TF.1 *Techno-economics and business aspects,*
Leads: Raffele de Peppe, Giovanni Frattini

TF.2 *Enabling technologies for vertical) ecosystem transformation and federation,*
Leads:

Membership*: Currently about 50 members from industry, SME and research domains*

Activities: *Workshops, White Papers and Task Forces*

New members *are very welcome.*

https://www.networldeurope.eu/enabling-technologies-for-future-vertical-ecosystem-transformation/

What may 6G bring to health and well being?

New user equipment design in 6G

Implantable: Implantable miniature sensors and "nanosensors" devices including cardiac pacemakers, implantable cardiac defibrillators (ICDs), coronary stents, hip implants, interocular lenses and implantable insulin pumps. Also, Biomolecular Sensing devices (DNA microarrays, Chemical sensors).

Wearable: Sensors that are embedded in some type of garments/textile to monitor (ECG, EEG, EMG, EOG, accelerometers, BVP, glucose sensors, GSR, PPG).

Example use cases could be paramedics and firefighters may eventually be required to use wearables that track their heart rates and stress levels.

Tattooable: Ultra-thin electric mesh for human skin, or temporary skin that can store data and deliver drugs—and electronic second skins made of microscopic semiconductors

High accuracy localisation and tracking in 6G

Tracking : Indoor movements of of patients in a hospital or elderly in a care homes

Localization: Devices and equipment's to improve logistics and operations.

Device-free Sensing: Patient's vital signals (heart-rate) etc using 6G signals.

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NetworldEurope European Technology Platform

Enabling Technologies for Future Vertical Ecosystem Transformation White Paper (I)

Thank You!

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https://6g-lab.org