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INNO4HEALTH

Stimulate continuous monitoring in personal and physical health

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PU	Public	✔️
PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (excluding the Commission Services)	

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1 Introduction

The first task of the project management work package (WP8) of the INNO4HEALTH project concerns the monitoring and control of the overall progress of the project.

Next to items like overall project coordination, daily management, risk management and quality assurance, it is also important to make a public summary available to introduce the project to the wider audience.

This report contains a concise description of the background, the content, the aim and the structure of the project in a well accessible form, so that it can easily be used for a quick project introduction to interested parties.

Consortium confidential information has been left out of the summary in order to avoid any restrictions in use and to make it as widely applicable as possible.

2 Public summary

Compared to the pace of innovation in electronic consumer products, the pace of innovation in monitoring devices is lagging behind. It is the overarching objective of INNO4HEALTH to accelerate innovation in electronic medical and sports devices.
INNO4HEALTH will Incorporate Remote Patient Monitoring (RPM) in chronic disease management, which can significantly improve an individual's quality of life.
INNO4HEALTH aims to stimulate innovation in continuous health and fitness monitoring in order to inform patients and their physician on their readiness regarding surgery and the ability to recover rapidly from invasive treatment. In sports, the same technology will be used to continuously assess fitness and health in order to provide information to athletes and their coaches and to help them optimise their performance during competitions.

Background

In our aging population, the number of surgeries performed is increasing rapidly. At the same time, there is a growing risk of complications, as patients are becoming frailer and have more comorbidities. In top sports, tracking the condition of athletes is essential to guide physical preparation. However, maladaptation to training, risks of injuries and adverse health events like sudden cardiac arrest are often reported in the news, affecting both elite as well as recreational athletes.
These problematic challenges deriving from the healthcare and sports domains may require solutions that have a lot more in common than it could be thought.

In the clinical community, **preparing patients to be fit for surgery** and rehabilitation generates a win-win situation for:

1) Payers in terms of healthcare cost savings,
2) Patients in terms of health outcome

3) Clinicians in terms of workload, due to optimized speed of recovery and minimized chance of complications. In sports practice, **preparing athletes to be fit for sport competition** and recovery is a complex challenge, which requires insight into the fitness, recovery and psychological status of the individual.

INNO4HEALTH aims to stimulate innovation in continuous health and fitness monitoring to inform patients and their treating physician regarding the readiness associated with surgery and the ability to recover rapidly from invasive treatment. In sports, the same technology will be used to continuously assess fitness and health to provide information to athletes and their coaches and to help them optimize performance during competitions. INNO4HEALTH will be a pioneer in the area of comprehensive data capturing and interpretation outside the hospital walls and training field. INNO4HEALTH will foster advances in sensing technologies, emerging IoT communication capabilities and artificial intelligence for embedded data interpretation and user analytics.

INNO4HEALTH will create innovative design for wearable sensors (in-soles, shirts, plasters) that address usability needs of both patients and athletes. Wearable products (commercially available or investigational research prototypes) will be included in a device ecosystem to enable data collection in healthcare and sports use cases. AI technology will be used to develop algorithms for performance, fitness and health assessment that could be optimized locally at the user-level or scaled up to populations of patients and athletes. Ultimately, domain-dependent professional dashboards and AI-centred applications will be created to generate guidance for health and fitness improvement programs.

INNO4HEALTH platform
The project will aim at developing a technology platform for data collection, management and interpretation, which will enable use cases in the healthcare and sports domains. On the market, there is currently no solution for monitoring both patients and athletes with a unified ecosystem of devices and interpretation algorithms. An ecosystem of wearable devices carrying both innovative as well as existing sensors of physiological parameters will be introduced for data collection and extraction of fitness, movement, activity, sleep, stress, and psychology and health metrics.
The innovations includes:
- Long-term ECG monitoring in both patients and athletes
- In-sole sensing based full-disclosure of health relevant data
- Ultra-sound based body core temperature assessment
- Facial liveness detection for biometric identification
- Algorithms for interpretation of wearable sensors data
- Localized AI for data analytics in Sports

- Decision support for preparation and recovery from surgery and athletic competition

The Consortium

INNO4HEALTH brings together an extensive consortium consisting of 31 partners from one Canadian and six European countries. The consortium is a well balanced consortium, covering the complete supply chain including academia, RTOs and institutes, technology suppliers, device manufacturers, clinical partners and sports clubs. The total eligible costs are estimated at € 20M. The added value of this consortium is that we will cover a broad spectrum in the technical and market value chain, with direct access to patients and athletes.

3 Conclusions

The public summary is available to inform the general public about the objectives and approach of INNO4HEALTH.

It will be made available through appropriate channels (Web, LinkedIn, Twitter, etc) in order to increase the outreach. If required, the summary will be adapted during the project, but it is to be expected that possible modifications will not touch the core message of the project and will only concern marginal changes.