


Proposal Evaluation Form

	EUROPEAN COMMISSION Horizon 2020 - Research and Innovation Framework Programme PHC 21 – 2015: Advancing active and healthy ageing with ICT: Early risk detection and intervention	Evaluation Summary Report- Research and innovation actions/Innovation actions
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Call: H2020-PHC-2015-single-stage
Funding scheme: Research and Innovation action
Proposal number:
Proposal acronym: YXY
Duration (months): 36
Proposal title: Sensing and predictive treatment of frailty and associated co-morbidities using advanced personalized patient models and advanced interventions
Activity: PHC-21-2015 Risk detection RIA

N.	Proposer name	Country	Total Cost	%	Grant Requested	%
1	UNIVERSITY OF PATRAS	EL				
2	BRAINSTORM MULTIMEDIA S.L.	ES				
3	SMARTEX S.R.L.	IT				
4	AGE PLATFORM EUROPE AISBL	BE				
5	ETHNIKOKENTRO EREVNASKAI TECHNOLOGIKIS ANAPTYXIS	EL				
6	AGECARE (CYPRUS) LTD	CY				
7	GRUPPO SIGLA SRL	IT				
8	HYPERTECH (CHAIPERTEK) ANONYMOS VIOMICCHANIKI EMPORIKI ETAIREIA PLIROFORIKIS KAI NEON TECHNOLOGION	EL				
9	Centre Hospitalier Universitaire de Nancy	FR				
Total:			3,820,895		3,820,895	

Abstract:
 Ageing population is steeply increasing worldwide. A consequence of age related decline is the clinical condition of frailty. Frailty is a biological syndrome of decreased reserve and resistance to stressors, resulting from cumulative declines across multiple physiologic systems and causing vulnerability to adverse outcomes. Susceptibility to stressors is influenced by biological, behavioral, environmental, and social risk factors, with the main consequence being an increased risk for multiple adverse health outcomes, including disability, morbidity, falls, hospitalization, institutionalization, and death. However, frailty is a dynamic and not an irreversible process; it seems preventable, may be delayed, or reversed. Our understanding of frailty has markedly improved over the last five years, yet there are many issues yet to be resolved. YXY aims to better understand frailty and its relation to co-morbidities; to identify quantitative and qualitative measures of frailty through advanced data mining approaches on multiparametric data and use them to predict short and long-term outcome and risk of frailty; to develop real life sensing (physical, cognitive, psychological, social) and intervention (guidelines, real-time feedback, AR serious games) platform offering physiological reserve and external challenges; to provide a digital patient model of frailty sensitive to several dynamic parameters, including physiological, behavioural and contextual; this model being the key for developing and testing pharmaceutical and non-pharmaceutical interventions; to create "prevent-frailty" evidence-based recommendations for the elderly; to strengthen the motor, cognitive, and other "anti-frailty" activities through the delivery of personalised treatment programmes, monitoring alerts, guidance and education; and to achieve all with a safe, unobtrusive and acceptable system for the ageing population while reducing the cost of health care systems.

Evaluation Summary Report

Evaluation Result

Total score: 14.50 (Threshold: 12)

Form information

SCORING

Scores must be in the range 0-5.

Interpretation of the score:

- 0** The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.
- 1 Poor.** The criterion is inadequately addressed, or there are serious inherent weaknesses.
- 2 Fair.** The proposal broadly addresses the criterion, but there are significant weaknesses.
- 3 Good.** The proposal addresses the criterion well, but a number of shortcomings are present.
- 4 Very good.** The proposal addresses the criterion very well, but a small number of shortcomings are present.
- 5 Excellent.** The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

Criterion 1 - Excellence

Score: **4.50** (Threshold: 4/5.00 , Weight: 100.00%)

Note: The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description in the work programme. If a proposal is partly out of scope, this must be reflected in the scoring, and explained in the comments.

Clarity and pertinence of the objectives

Credibility of the proposed approach

Soundness of the concept, including trans-disciplinary considerations, where relevant

Extent that proposed work is ambitious, has innovation potential, and is beyond the state of the art (e.g. ground-breaking objectives, novel concepts and approaches)

The objectives are clearly stated and justified, and relevant to the topics of the call PHC-21. However, the proposal presents multiple objectives and, for instance, how the "Glove" will be used as a tool to measure grip strength, is not clearly explained.

Overall, the proposal describes a holistic approach for early frailty detection, prevention and intervention, fusing physiological, behavioral, social, cognitive information acquired, unobtrusively both in in-doors and out-doors environments. Moreover, the proposal has good inclusion/exclusion criteria and intends to evaluate more than 400 individuals, making it a comparatively large study.

The proposal presents a multi-factorial (physical, cognitive, psychological, functional and social) approach which relies on the state of the art knowledge and proposes to reuse and combine a number of already validated tools and concepts developed by the partners in other past, or ongoing, projects. The ambition is very complex, and there is a risk that the combination of the sensorized shirt and the "ergoGlove" is too obtrusive for the end users to actually be effectively used.

The overall concept is sound and ambitious. The proposal intends to apply state-of-the-art technology, both in terms of sensors, signal processing and data mining, as well as innovative interfaces exploring augmented reality games and natural language communication using conversational agents. Moreover, the intention is to develop measures to define frailty and its relation to co-morbidities.

Overall, the proposed work is novel and there is potential that the outcomes contribute to progress beyond state-of-the-art related to early detection, prediction, as well as interventions for preventing or reverting frailty.

Criterion 2 - Impact

Score: **5.00** (Threshold: 4/5.00 , Weight: 100.00%)

Note: The following aspects will be taken into account, to the extent to which the outputs of the project should contribute at the European and/or International level:

The expected impacts listed in the work programme under the relevant topic

Enhancing innovation capacity and integration of new knowledge

Strengthening the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets, and where relevant, by delivering such innovations to the markets

Any other environmental and socially important impacts (not already covered above)

Effectiveness of the proposed measures to exploit and disseminate the project results (including management of IPR), to communicate the project, and to manage research data where relevant

The proposal clearly contributes to all expected impacts of the work programme. The impacts are supported by measurable indicators.

Overall, the potential outcome measures go beyond quality of life improvement, as they include incidence of falls, mobility, disability, mood, cognition, delirium, hospitalization, institutionalization, and mortality. If a substantial number of these targets are achieved, the overall outcome is very positive.

The proposal enhances innovation and integration of knowledge from a multi-disciplinary perspective.

The potential that the outcomes of the proposal will strengthen the competitiveness and growth of companies is adequate, as there are several emerging market opportunities related to ageing population and, especially, frailty.

The dissemination plans are detailed and appropriate. The exploitation plans are well elaborated and very convincing. IPR management is adequately addressed.

Criterion 3 - Quality and efficiency of the implementation

Score: **5.00** (Threshold: 3/5.00 , Weight: 100.00%)

Note: The following aspects will be taken into account:

Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources

Complementarity of the participants within the consortium (when relevant)

Appropriateness of the management structures and procedures, including risk and innovation management

The work plan is well elaborated, coherently organized and sufficiently detailed. The allocation and justification of tasks, milestones and resources are adequately detailed.

The consortium as a whole represents multi-disciplinary expertise and clearly presents complementary competencies. The individual partners are very experienced and well suited for their respective roles and tasks.

The management structures and procedures are adequately presented and effective.

Risk management, with supporting mitigation measures, as well as innovation management, is properly addressed