LINK: Linking Excellence in Biomedical knowledge and Computational Intelligence Research for personalized management of CVD within PHC

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Current PHC systems are designed using the "one fits all" principal lacking a truly personalization by capturing and adapting to the patients' phenotype and individualized treatment or context needs. In order to pave the way from personal to personalised systems, PHC require intelligent algorithms to treat and correct data obtained from uncontrolled conditions, to efficiently integrate multimodal and multi-scale data, to be self-adapting (moving from population-based to patient-specific adaptations) and interpretable, and to integrate clinical and biomedical evidence at their genesis.

Project LINK, an EU-H2020 funded project, intends to link competences in intelligent processing in order to create a research ecosystem to address two central scientific and technical challenges for PHC deployment: (1) infusion of clinical evidence biomedical knowledge in PHC solutions and (2) moving PHC solutions from personal to personalized services, i.e., services adapted to the specific user needs and characteristics.

In order to implement LINK a double loop strategy will be applied:

The excellence loop: this loop will create the ecosystem for sustainable linking and synergies exploitation inside the consortium in order to increase excellence and widening EU participation.

- *Cutting edge research tracks*: Using a structured assessment of the PHC research status and an international research forum, a roadmap for excellence in biomedical knowledge and intelligent algorithms for CVD management shall be established. From this research agenda, specific cutting edge research tracks shall be selected and developed by common inter-institutional workgroups.
- *Knowledge transfer and promotion of synergies*: Inter-institution research teams shall be defined for each defined research track. Workshops, training programs, researcher exchange and internships will support the setup and knowledge transfer between partners required to kick-off each research track.
- *Shared advanced training*: Existing national and European grant programs as well as transnational twinning protocols (anchored on existing cooperation of the consortium with South American universities) shall be explored in order to recruit and support common PhD and post-doc students.
- *Concept development and H2020 project proposals*: Research tracks will support Concept definition activities aimed at identifying the scientific, technical, social and economic requirements of relevant project ideas in PHC for CVD management. These concepts will be the basis for new project and network proposals to be led or to be integrated by researchers of the consortium.

The Internationalization loop: this loop will support leverage of international impact of team members by strengthening the links of the consortium to key international societies by promoting an active leading role of the consortium's members inside these organisations and by exploring synergies with these organizations for training, dissemination and scientific steering.

- *Research and innovation forum*: Key international as well as regional scientific associations (e.g., IEEE- EMBS, the IFMBE, the Brazilian Society of Biomedical Engineering), academics, industrial, policy making and societal will integrate the research and innovation forum of LINK. This forum will help LINK to perform a strategic analysis in order to identify the gaps in intelligent processing for PHC. The main output of this forum will be a research agenda to support international research in the field.
- *International impact*: Existing and new links to members of the research forum will support the design of curricula and teaching materials for advanced training. Activities to increase the Consortium members' involvement in chairing major international events in the field as well as to link to well-established and reputed summer schools will be implemented.