

DARE

DIGITAL LIFELONG PREVENTION

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Spoke 1 Deliverable

SP1.D6.1 Plan for enhanced educational programming

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S1.D6.1 Plan for Enhanced Educational Programming

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1. Advanced education

WP6 “Education, Training and Career Pathways” will coordinate all training and retraining activities of the DARE project. The activities developed within Spoke 1 will be coordinated with the WP6 activities of Spokes 2 and 3. The aim is to address the lack of qualified personnel and improve the level of digital skills in the context of health prevention, which employers and employees require.

Task 6.1, “Establishing Education, Research and Career Pathways”, will be developed through the enhancement of postgraduate university courses and doctoral programmes focusing on essential and advanced digital and computational skills in health, with a focus on prevention and health promotion. In addition, the courses focus on the planning and implementation of epidemiological studies, starting from the drafting of the research protocol to the collection, analysis and evaluation of data within healthcare organizations. The target group includes master’s students from the contributing beneficiaries of SP 1-2-3, the current project workforce and newly hired ones to address the purposes of the DARE project and those working in the research setting of real-world data and their applications. The educational plan is developed dynamically, and other learning pathways may be added in response to special needs that may arise during DARE's planned activities. The contents of the newly developed activities are planned by a Scientific committee whose task is to propose a detailed syllabus and to identify the lecturers.

1.1. Learning activities open to external participants

To promote the diffusion of a culture centred on digital health prevention, a series of activities targeted to the general public wishing to improve its competencies in the field will be proposed. Some of them are already part of the learning offer of the partner universities but will be adapted to the context of Digital Prevention.

The advanced learning programmes we propose are:

- **Lifelong Learning Certificate “From data to decision”** an international course promoted by the Una Europa Alliance (to which UNIBO belongs) that will introduce professionals to fundamentals of data science in a non-technical way, providing them with the skills to understand the importance of data-driven decision making and



interact with technical data science teams in their organizations. The 24-25 edition will be focused on health data science.

- **Advanced Learning Course in Medical Statistics**, provided by Unibo, aims to introduce the basic concepts of statistical analysis in the sciences of the medical and health care area and aims to train medical and health care personnel involved in clinical and epidemiological research and to improve their statistical skills, also with a view to promoting the scientific publication of research results.
- **Advanced Learning Course in Clinical and Health Research Methodology**, provided by Unibo, aims to provide the skills to actively participate in clinical and health research, disseminate its results and apply them in professional practice.
- **Advanced Learning Course in Leadership in Medicine**, provided by UCSC, aims to provide leadership tools and management and organizational skills for professionals working in complex organizations, including considering digital transformation in health care
- **Advanced Learning Course in Planning, organization and management of health care bodies and services**, provided by UCSC, aims to provide the professional skills needed to successfully manage organizational and strategic processes in the health sector.
- **Advanced Learning Course in Epidemiology and biostatistics for clinical and population research**, provided by UCSC, aims to improve knowledge of epidemiological and statistical tools and enable proper interpretation of scientific literature and data.
- **Summer School in Global Health and Epidemiology**, provided by UCSC, aims to increase knowledge about the tools to measure global health burden and major determinants of disease with an overview on ethical issues, such as global bioethics and human rights.
- **Summer School in Health Policy and Management for Universal Coverage**, provided by UCSC, aims to provide tools to analyse the key factors that affect the organization of a health care delivery in a public welfare system.

Besides programs that can be framed in the context of advanced education, we are working on the possibility to offer new courses at the MSc and at the PhD level:

- **Master's degree in Applied Data Science** promoted by Una Europa Alliance (under Una.Futura funding) will provide students' knowledge and practical skills to apply data science to different domains with a specialized track on Health data science offered by UNIBO. The course is under development and is expected to start in the a.y. 25-26.
- Feasibility study for a **Joint PhD in Digital Prevention** involving a plurality of DARE partners.

The final educational output of DARE will be:

- **Online School on Digital Prevention.** It will be publicly available and will be aimed at providing an in-depth knowledge of digital prevention in healthcare, borrowing from the DARE experience. The partners will contribute with recorded classes that together will provide a guideline for people interested in improving their competence in the DARE topic.

1.2. Learning activities for newly hired and DARE workforce

Other pathways that will be part of the training offer dedicated to DARE current workforce and newly hired one are:

- **Summer School on Digital Prevention** aimed at providing in-depth knowledge of digital prevention in healthcare with an interdisciplinary approach.
- **Alphabetization Course on Evolutionary algorithms for machine learning in the medical field** intends to introduce the main variants of EC algorithms (genetic algorithms, genetic programming, swarm intelligence) by showing some application examples, including signal and image processing of medical interest. In particular, problems encountered in machine learning applications will be considered, thus proposing EA as an alternative to these techniques.

The following pathways are offered by university partners who will make some of the master's modules available in asynchronous mode:

- **Master's Degree Course in Health policies and digital transformation** provided by UNIBO aims at providing students with the conceptual and analytical tools necessary to understand the implications of health policies arising from the increasing availability of large databases and sophisticated tools for their analysis, as well as the growing spread of digital technology tools also available to citizens and patients.
- **Master's Degree Course in Biomedical Engineering**, provided by UniPA, with the aim of offering multidisciplinary skills in industrial engineering, information engineering and medical-biological engineering.
- **Master's Degree Course in Medicine, Surgery and Applied Technology (MED-IT)**, provided by UniPA, aims to train students with a clear awareness and vision of the potential offered to the medical field by technological advances and the correct use of the most advanced and innovative technologies in the medical field, from prevention to diagnosis, treatment and rehabilitation.
- **Master's Degree Course in Health care and environmental protection techniques (preventive class)**, provided by UniPA, aims to train health professionals with the scientific and technical knowledge required for the profession of prevention technician.
- **Master's Degree Course in Organisation and management of health care facilities and services**, provided by UniPA, aims to train professionals capable of carrying out care, management, training and research processes in the relevant field of the completion of prevention activities dedicated to the individual and the environment in an increasingly One-Health logic in line with the directives of the World Health Organisation.
- **Master's Degree Course in Machine Learning for Digital Health**, provided by UniBa, lasting 60 hours will be delivered in blended mode.
- **Master's Degree Course in Healthcare Digital Transformation**, provided by UniBa, lasting 60 hours will be delivered in blended mode.



1.3. Educational platform and certifications

The design and the implementation of the education, research, and career pathways will take into account blended delivery systems through a specific learning environment called “LearningFlix” provided by the partner Birex.

Specific didactic multimedia approaches dedicated to adult education will be adopted that will include innovative teaching strategies involving collaborative learning, for example, debates, case studies, simulations and live interaction with learners.

These pathways will be certified through the ECTS system and also micro-credentials and open badges for shorter courses that can be shared, portable and combined into larger credentials.

ECTS credits will be provided where appropriate.