

# Digitalizing Products - unlocking the potential

(Draft Idea Proposal)

## Call and Funding Scheme

Erasmus+ EU programme. Key Action 2: Strategic partnerships, supporting innovation in the field of education, training and youth. (deadline: Marts 2020)

## Background

An emerged technology-push within Information and Communication Technology (ICT) has led to an evolving digital transformation within industry (Lasi *et al.*, 2014). The digital transformation is often described as a *revolution* due to the expected impact on industry, changing the competition and business. Especially the digitalization of products, is predicted to hold a huge potential of innovation, offering new opportunities and possibilities, to both users and companies (Porter and Heppelmann, 2014). As a result of the digitalizing, products are transformed into complex systems, where mechanical components and functions are integrated with electrical and digital components and elements, connected through embedded operating systems and networks (Porter and Heppelmann, 2014). Developing digitalized products, therefore requires new skills within interdisciplinary capabilities, potentially creating a gap between industry needs and the future competences of engineers and technicians. Reducing the mismatch between the skills available and those demanded for, the digital transformation has been, and still is a high priority at EU. The Commission has stated, that upgrading skills is not enough, and that it is essential to achieve a better match between skills supply and demand on the labour market. Accordingly, this project focuses on identifying and addressing the future skills of engineers and technicians, digitalizing products with the aim of developing new course material and/or updating existing curriculums/programs.

Digitalizing products, the interface and integration between the different mechanical, electrical, and digital components and elements, becomes of great importance. Despite the importance, interdisciplinary activities across domains, strengthening the students understanding of integration and interfaces, seems to get little attention at many educational institutions. The programmes often consist of educational activities taking place within isolated technical disciplines/domains. This can be due to rigid curriculums or practical difficulties coordinating activities across different educational programs. But from experience, lecturers often find it difficult to plan and execute interdisciplinary activities, as it requires them to work interdisciplinary, essentially developing a new domain. Accordingly, there is a need to support lecturers planning and executing interdisciplinary activities, developing new tools, methods or approaches, strengthen interdisciplinary activities, both from a practical point of view but also from an ontological point of view.

## Project description

The overall aim of the project is to strengthen the competitiveness of the European industry, unlocking the potential of innovation embedded in digitalizing products. Accordingly, the project focusses at strengthen the interdisciplinary capabilities among students from primary mechanical programmes and programmes

within the field of ICT, by supporting lecturers in planning and executing interdisciplinary activities at existing programs.

The primary objective is to develop a number of demonstrators (3-5 demonstrators from each partnering institution), based on cases from industry, which can be used to develop new educational material, methods or approaches, aimed at improving the students' interdisciplinary capabilities. The secondary objective is to use the demonstrators as examples, creating awareness and inspiration in industry. The project will focus at SMEs located in the partnering countries, also giving the project a regional perspective.

To ensure the long-term sustainability and adoption of the teaching material and approaches, the project will focus on the communication and dissemination of the project activities and results, during the project period. Furthermore, the consortium will develop partnerships with relevant industrial partners to ensure the relevance and industrial impact of the educational activities.

### Partners search

This project will build on a strategic partnership between educational institutions with educational programmes within mechanics and the fields of ICT. The consortium will consist of four 'operative partners' and one 'knowledge partner'. University College of Northern Denmark (UCN), the applying institution has experience as both coordinator and partner in various ERASMUS+ projects. Currently UCN is coordinator of 5 ERASMUS+ KA2 projects and is partner in other KA2 projects. We also have project experiences from Horizon2020, InterReg, ESF, ERDF, national and private funds.

The 'operative partners' should preferably focus at higher education at level 5 and/or 6 in the European Qualifications Framework (EQF), to ensure a homogeneous educational level among the partners. The 'knowledge partner' could be a university or institute of technology or similar, with experience from the interdisciplinary domain between mechanics and the field of ICT. Preferable, the 'knowledge partner' has prior experience from an educational programme within 'mechatronic' or similar. The 'knowledge partner' is not expected to take part in developing and implementing any demonstrators at their institution, during the project. All the 'operating partners' are expected to have a strong network with the SMEs in their region, strengthening the impact of the project.

### Budget and duration

The project will have a duration of 36 months and the budget will approximately be 450.000 Euro in total.

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