

Summary of D4.3 – Report on Best Practice for University

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EDDIE Consortium

Deliverable D4.3 - European policy work and economic strategies should function coherently to produce a framework suited to redesigning higher level education (in university, vocational schools and lifelong professional development) in accordance with the industrial transition and digitalization, also in the Energy sector. Next to this, bridging and methodological transfer in university, vocational and lifelong education should exist to ensure the adaptation of curricula to the demands of the labor market. In this scenario, this deliverable is one of a triplet of “technical reports” on Best Practice (BP) for higher education, and in particular focuses on Best Practice for university. The BP is defined as a set of procedures aimed at reformulating the academic teaching offer and the academic learning process, directed to the Energy sector and the delivery of skillset demanded by its digitalization and transformation.

Deliverable D4.3 gives an overview of current guidelines, emerging strategies, and existing examples of good practice with a focus on redesigning the teaching and learning procedures in university to align them to the requirements of the new digital world and energy sector. In addition, it lays out upcoming trends and opportunities for the identification of new recommendations and procedures that could redesign the academic offer. Practically, the scope and contribution of the report can be formalized into the five following major points:

- 1) It provides the framework of existing recommendations and strategies to rethink education and the energy industry in the view of digitalization. This framework is also populated by existing examples of good practice in education and training.
- 2) It presents the array of the current good practices that can be integrated within the framework of the EDDIE (BP).
- 3) It identifies the trends and opportunities for development of a new BP for university education (based on 1) and 2)).
- 4) It sets up the concepts and methodology for the practical development of the BP for university education, according to the vision and rationale of the EDDIE project and the objectives of its Blueprint.
- 5) It sets the ground for identification of new recommendations and practices that will advance the existing ones.

The BP is intended to be any process defined by a set of procedures (i.e., recommendations, lessons learned, examples of existing good practices, new practices that advance them, practical tools) for the redesign and methodological validation of teaching and learning, directed to the Energy sector and the delivery of the skillset demanded by its digitalization and transformation. For the design and development of a BP, a bottom-up approach is proposed: the BP is the result of an analysis and evaluation of the current labour market, market and industry specifics as well as of the EU strategy set to achieve a digital transformation of the energy sector. Inputs from market, stakeholders involved in the energy sector, public authorities (to define the demand, as it is seen in the EDDIE ecosystem) but also other inputs on the current offer from university are considered. From this information, it can be defined WHAT has to be done in terms of BP (procedures) and HOW this should be achieved.

Existing policy work, recommendations and industrial strategies are “the reference point” for universities across Europe to digitalize the teaching and learning experience, and to deliver the technical and soft skills that are nowadays needed in the profession and social integration. Hence, these policies, recommendations and strategies represent the core information, which the BPs of EDDIE should build upon. Here, the assessment of the [Digital Education Action Plan](#) (DEAP) in the report aimed at identifying the Actions that seem particularly relevant for the redesign of academic education (and training in general), in line with the upskilling and reskilling requirements that are following the changes of labour market and industry. The critical review of the DEAP performed in the report has revealed, to a certain extent, the accuracy of the BP and BSDE design to attain its objectives. In this line, reviewing policies and stakeholders’ strategies comes as essential when observing the large number of initiatives fostered by the EU. Similarly important is the cooperation between the large numbers of actors in the Energy scenario to meet the goals set by EU.

The actions formulated in DEAP that seem particularly interesting for the EDDIE project at University context are the following:

- Launch a strategic dialogue with Member States in order to prepare a possible proposal for a Council Recommendation on the enabling factors for successful digital education by 2022.
- Develop a European Digital Education Content Framework by 2023 and launch a feasibility study on the creation of a European exchange platform by the end of 2021.
- Use Erasmus cooperation projects to support the digital transformation plans of primary, secondary, vocational education and training (VET), higher, and adult-education institutions, as well as support digital pedagogy and expertise in the use of digital tools.
- Update the European Digital Content Framework to include AI and data-related skills.
- Develop a European Digital Skills Certificate (EDSC) that may be recognised and accepted by governments, employers and other stakeholders across Europe, by 2023.
- Encourage women’s participation in STEM.
- European Digital Education Hub: The Commission will establish a European Digital Education Hub by 2022, to improve cooperation on digital education at the EU level.

With respect to fostering the development of a high-performing digital education system, we can extract three points where Universities must actively contribute: procedures, contents, connectivity and competences. More concretely, the list of actions in the DEAP shows that there is a process of review and definition of the factors that could optimize the transition of the education system to a new digital one.

The European Framework for Digital Education Content is very relevant in regards to structuring the new digital learning and teaching technologies. This framework could support the EDDIE project in evaluating its outputs in terms of contents, and in setting new goals and processes to produce digital contents. Furthermore, the European Exchange Platform could be used by the entity to share the education resources and platforms produced by the project itself.

Currently we are in a moment of re-design of the education system. Therefore, we have a good opportunity to prevent the new system from exhibiting some of its current biases. Depending on the bias Universities can play a fundamental role in the correction bias and in guiding the Ethics dialogue for inclusion of technologies in society to be person-centric.

The DEAP encourages leveraging the current cooperation projects (mainly the Erasmus ones) to optimize the digital transformation plans. Europe may harmonize the resources placed in the digital transition of the Education system both by preventing us from redundant actions and by optimizing knowledge and good-practice sharing, which will eventually lead to an optimized digital transformation pipeline. In this point, the Digital Energy stakeholder map, which is being created in

the EDDIE project, may well be an important asset, and the BSDE entity design must leverage it to foster collaboration.

With respect to enhancing digital skills and competences for the digital transformation, it seems straightforward that Universities must play a pivotal role. It is extremely important to make updated standards like the [Digital Competence Framework](#) (DCF) or the European Digital Skills Certificate (EDSC) be recognized by all stakeholders as references to structuring skills and competences and to assess the digital maturity of individuals. Only having an efficient mechanism for measuring digital maturity in a massive way (like the EDSC) can we be proficient in making the European society transition to the desired digital to be scenario. Regarding the DCF, the EDDIE project can contribute in different dimensions, especially by enriching the competence framework with its findings from WP2.

The recommendation of promoting hands-on experience in fields demanded by the labour market is definitely at the core of the EDDIE's BSDE approach. The marketplace approach that is tentatively proposed in the current version of the BSDE entity can make it easy for industry to efficiently convey these demand signals to all education providers.

The DEAP promotes the [Digital Education Hub](#) (DEH) to improve cooperation. This is fundamental to enable properly scale initiatives. The EDDIE project can clearly find synergies with this DEH that, indeed, may play a pivotal role in making the entity resulting from the BSDE design be sustainable.

Finally, a set of good practices in the European context is presented in the report. These good practices have been selected taking into account how the use of digital technologies has improved the teaching-learning process or the employability skills of those students, workers or teachers working in the energy sector. Some of these selected digital competencies are related to the skill gaps detected throughout the EDDIE Project research process:

- Artificial Intelligence
- Big Data/Data Analytics
- Cybersecurity
- Digital Platforms
- Internet of things (IoT)
- Cloud services
- Virtual product development and testing
- Blockchain
- Digital asset management
- Energy management systems
- Communication technologies (e.g., 5G)

Most of the examples of good practice found are in the VET system and in specific regions (mainly, Spain and Italy). The dual VET approach appears to be a common feature of most good programs found, which somehow reflects the need for bringing closer the Education system and industry in southern European latitudes. We have found few proficient examples of good practices at University level, which is something certainly required. Based on these good practices the BP for the BPDS will be developed. In addition, this is something to be actively tackled by the EDDIE project in WPs 5 & 6.

