Summary of D5.1 – Specification, conceptual design and application to the partial results compiled from other work packages

Deliverable D5.1 - Specification, conceptual design and application to the partial results compiled from other work packages of the EDDIE project is a consolidated view of the skill gaps, the stakeholders and the current policies and requirements, assessing and stressing the ones with the highest usefulness to define the Blueprint Strategy for the Digitalisation of the Energy value chain (BSDE) and providing an initial draft view on how this can be applied to build the blueprint.
The deliverable has been coordinated by partner Universidad Pontificia COMILLAS.

Since the goal of Erasmus+ project funded by the European Commission within the Sector Skills Alliances (SSA) framework is to develop a self-sustainable long-driven strategy (Blueprint) towards the digitalisation of the European Energy sector, bringing together all the relevant stakeholders, it is needed a analysis of the current challenges of the matching between the match the current and future demand of digital skills, such as:

- Contribute to the evolution of the training ecosystem to include the required digital skills - Vocational Education and Training (VET) and beyond;
- Contribute to an effective re-training in digital skills of the current and future workforce of the Energy Sector;
- Improve the attractiveness of the Energy Sector as a career choice for digitally skilled workforce.

The **long-term objective** is to help create (and continuously maintain in a sustainable way) a highly skilled workforce available for:

- The improvement of the competitiveness of the European Energy Sector;
- The harmonisation of processes for an accurate and successful digitization;
- A smart, inclusive, and sustainable growth.

The **Work Package 5 (WP5) goals**, at the core of the EDDIE project, are:

- Develop: Blueprint Strategy for Digitalisation of Energy value chain (BSDE)
    - Based on a sustainable cooperation (and partnership) among key industry stakeholders, such as education/training providers, social partners, public authorities;
    - Matching (1) current and future demand of skills, and (2) supply of improved/adapted transnational contents, tools, and methodologies from education/training providers.
- Provide concrete examples –and recommendations- of policies/initiatives
    - At national/regional level;
    - Aiming at addressing skills shortages and mismatches.
- Including:
    - VET and beyond, at EQF levels 4 to 8, both for I-VET and C-VET;
    - References to ECTS, ECVET, EQF, EQAVET, ESCO;
    - Technical, green, soft, and digital skills.

Some EDDIE and WP5 extra features are:

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- Energy-worker skill-profile database, foresight tools and modules, curricula for addressing sector skill gaps at local and member state level;
- Europe wide certification strategy, for informal and formal education across Europe;
- EU targets, two global frameworks: Energy Union Package, commitments in COP21;
- Sustainable, low carbon, climate-friendly economy, … consumers at centre, smart-grid technologies, active neutral market facilitation, integrate of flexibility services;
- Stakeholders, database (organisations, profiles, interests, contacts, etc.):
  - Education community, tools vendors, in-company universities;
  - Energy sector;
  - Cross-cutting sectors: Decision-makers, environmental, social, public, media.

EDDIE will produce relevant documents and recommendations, but the main expected result is the BSDE (Blueprint Strategy for Digitalisation of Energy). The strategy is based in the creation of an institution (hereinafter the ENTITY) that would provide –or help provide- services to the main stakeholders involved in the digitalisation of the Energy Sector.

The legal nature of the ENTITY is still to be defined. Currently, it is conceived as a non-profit, low-cost and self-sustainable organisation. The main tasks performed by the ENTITY would be:

1) Management of a WEB platform to support the intended services and;
2) Dissemination, including the organisation of events and the elaboration of reports.

The analysis of services to be provided is based in helping the digital-skills acquisition process (see figure below). This process includes (1) training, (2, 7) recruiting, working (3) and re-training (4, 5, 6), based on identifying current skill gaps and forecasting future needs.
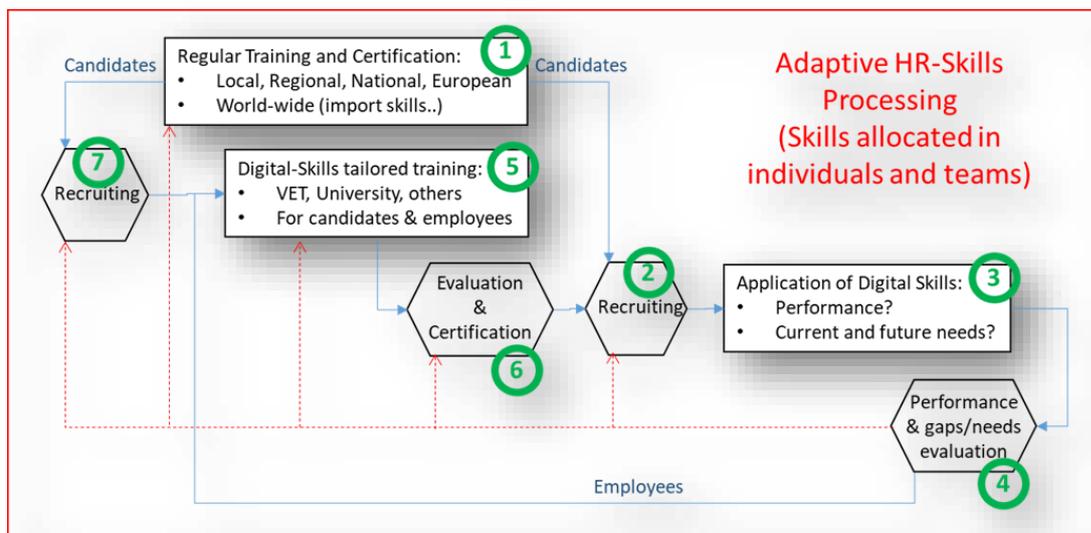
Some candidate services under analysis are the following:

1. Research and Dissemination platform:

Online platform in which EDDIE stakeholders share research and dissemination contents about digitalisation of the Energy Sector. Contents may include -or provide links to- papers, reports, projects, events, databases, institutions, news, posts, interviews, and so on.

2. Training Programmes marketplace:

Online platform in which EDDIE stakeholders -mainly training providers- advertise training programmes devoted to the digitalisation of the Energy Sector. Training programmes will be described by standard templates, attributes and keywords, to allow "search and select" functions

according to specific needs. It may include "flagship programmes" and re-usable contents provided by EDDIE as an additional service.

3. Jobs marketplace:

Online platform in which EDDIE stakeholders -mainly from Industry- advertise job openings, directly related to the digitalisation of the Energy Sector. Job profiles and requirements will be described by standard templates, attributes and keywords, to allow "search and select" functions according to specific needs. It may include candidate profiles (normalised CVs) from individuals or from other job marketplaces.

4. Tools and Systems marketplace:

Online platform in which EDDIE stakeholders -mainly vendors and consulting companies- advertise digital tools, systems and services directly related to the digitalisation of the Energy Sector. Products will be described by standard templates, attributes and keywords, to allow "search and select" functions. It may include SW and platform communities, open source contents, technologies, and standards.

5. Marketplace for other services:

To be defined, according to feedback and proposals from stakeholder. They may include consulting, assessment, validation, certification, or recruiting/head-hunting (always focussed on the digitalisation of the Energy Sector).

All these services would be specific for the core area of EDDIE: the digitalisation of the Energy Sector (see figure below)
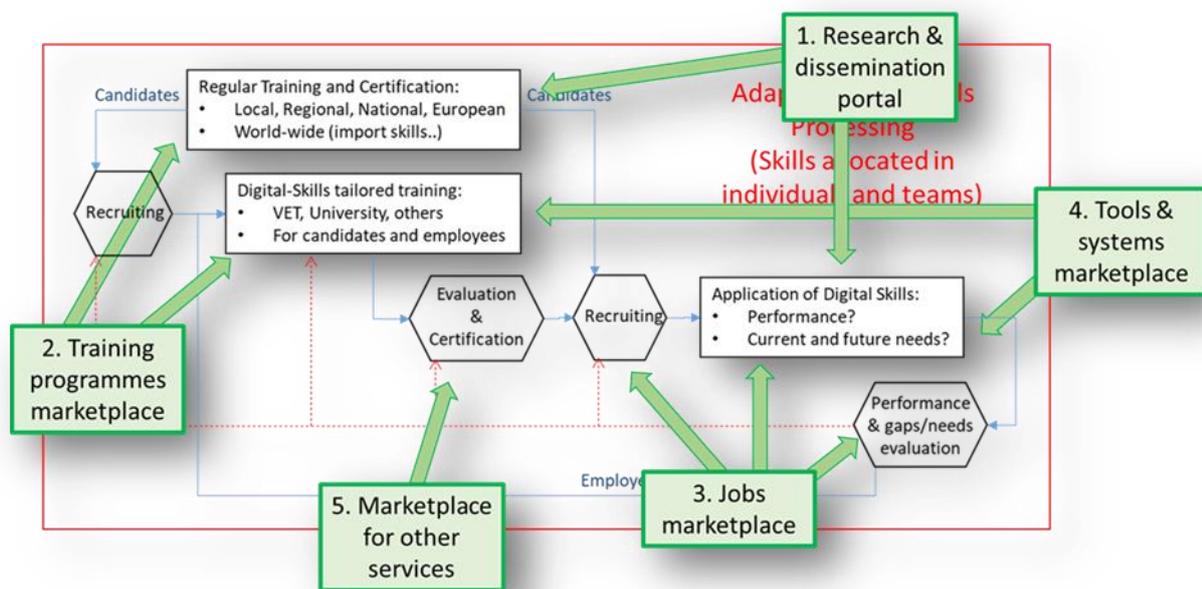
The main stakeholders considered are Industry (Energy Sector and sub-sectors, ICT Sector), Education (training providers in VET, University, and others), local Administration (national and regional levels), research institutions of any kind, and the European framework (projects, institutions, programs and centres). Other special stakeholders are related to potential partnership opportunities: associations, clusters, social networks and platforms.

Some tasks included in the Working Package, and therefore described in this document, are directly related to the services, analysed as business models –because of the desired sustainability of the strategy. Some other tasks are useful to perform and/or to add value to the services. They are closely related to one another and to the services, as shown in the last figure, and briefly described below.

1. Syllabus elements:

Definition of a structured catalogue of training contents, as a common language for skills, skill gaps, training goals, profile requirements for candidates to jobs and training programmes. This common language must cover different dimensions: knowledge areas, functional and transversal skills, specific tools/languages/technologies, and quantifiers both for extension (ECTS) and for level of abstraction (EQF). It may constitute the "body of knowledge" of the digitalised-energy ecosystem.

The fact of being a common language explains why this task is directly relevant for "2. New jobs-skills relations" and "3. General templates for programmes", and indirectly relevant for services such as research, training, and job portals.

2. New jobs-skills relations:

A new job profile may be generated in the Energy Sector because of a new type of business that require new jobs, or because of the upgrading of existing jobs. In any case, new job profiles will arise to handle new technologies, tools, and systems, and therefore there will be some skills to acquire.

This task consists in finding a systematic way of relating the new job profiles to the required skills. It is critical to reach a good version of the common language described in task "1. Syllabus elements", by testing in real cases how comprehensive, useful and practical it is. This task is relevant for services such as research, training, and job portals.

3. General template for programmes:

The goal of this task is the definition of a general template valid for any training programme. This template will be a set of structured data describing its business model and its academic model.

Since the training programme is at the core of the skill-acquisition process, this task is related to tasks and services:

- It will use the results of "1. Syllabus elements" to describe the contents of the programmes -at least in an advanced version of the template;
- It is of course critical for the training portal, to allow uploading and searching programmes in a systematic way;
- The template will be used in the description of "7. Flagship programmes";
- The elements of the template will be useful to classify in a systematic way the "4. Best practices" in the whole skill-acquisition process;
- Finally, it might be related to the jobs portal in two ways: first, in cases where recruiting and training are integrated in a single activity; second, because certain job profiles may be specific targets of some training programmes.

4. Best practices:

This task is meaningful in WP5 at multiple levels.

In the strict context of the EDDIE project, it will be a relevant component of a specific deliverable, "D5.4 Recommendations on how to improve the educational frameworks in the focus countries". Moreover, the compilation and analysis of best practices must inspire the whole strategy, so it will have a strong influence in the final deliverable "D5.5 BSDE presentation and strategic roadmap for the deployment of the action plans". This task is closely related to the analysis of education systems in Europe, and it will provide interesting reports as a product of the EDDIE project.

In terms of the sustainable extension of the EDDIE activities (i.e., the future services provided by the ENTITY) the final figure shows some relations to tasks and services. On one hand, the comparative analysis of best practices is a subject of continuous research and dissemination, and therefore is a

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potential content of the research portal. On the other hand, the business models of the different services must take into consideration potential competitors and partners. Current best practices in research portals, training portals, etc., must be identified and analysed, in order to think of functionalities that could add value to the services (competition) and synergies with other platforms (partnerships).

The last figure shows other relations among tasks. One is the use of the elements of programme templates to classify best practices (already mentioned), and the other represents the fact that a "flagship programme" may be selected because of being a best practice for a given training purpose.

6. Technical assessment:

The services of the ENTITY proposed here are WEB portals for different -but partially complementary- purposes. Therefore, their prototype versions and the business models of their final implementations will require technical work, in terms of database technology and design, contents specifications, functional requirements, architectural designs and interaction requirements, hosting requirements (including costs and technical specifications), management, security, and so on.

Other topics included in this task are the reliance on existing social networks towards maximum efficiency, techno-economic analysis of design options, and the legal implications: data protection, copyright and intellectual property issues.

In the EDDIE context, this task is related to the analysis, compilation and implementation of the network of stakeholders linked to the services portals. We believe that the only way to maintain an active network of stakeholders is to get them involved in specific activities of mutual interest.

7. Flagship programmes:

This task consists in the selection and/or development of outstanding training programmes, in the context of digitalisation of the Energy Sector. They may be selected for different reasons: adequate training goals, good structure and organisation, or any other characteristic considered an example of "good practices". This is why the figure shows a relation with "4. Best practices". It also shows direct relations to several services, since these flagship programmes may be specific contents of the dissemination and training portals, and even in the jobs portal when -as mentioned before in the description of "3. General template for programmes"- recruiting and training are integrated into a single activity.