

## Knowledge Alliance “IE3 – Industrial Engineering and Management of European Higher Education ”

30<sup>th</sup> June 2020

<b>AGENDA 30/06/2020</b>		
<b>Timing</b>	<b>Topic</b>	<b>Responsibility/Participants</b>
09:30 – 9:40	Overall presentation of WP3: objective, tasks, timeframe	LIU
09:40 – 10:40	Brainstorming on WP3 activities: methodologies, courses, administrative tasks, preparation activities for the refinement of the courses and pilots, evaluation methodologies for the courses, AOB	LIU / all partners
10:40 – 11:00	Coffee break	
11:00 – 11:55	Overall presentation of WP4 and brainstorming about teaching methodologies to be adopted for the e-learning courses: <ul style="list-style-type: none"> <li>• Recall for WP4 (UPM)</li> <li>• Main ideas and alignment with strategy (UPM)</li> <li>• Summary of the view/proposal (UPM)</li> <li>• Floor open for collecting partners' opinions (1 round table) (max 5 minutes per partner to express position for/against/alternatives except UPM) 30 min as max (all partners)</li> <li>• Wrap up conclusions (UPM)</li> </ul>	UPM / all partners
11:55 – 12:35	WP9 - Presentation of the new version of the website, dissemination plan, recap on the dissemination activities to be carried out	Infotech
12:35 – 12:50	Organization of next project meeting scheduled for M13 (November 2020) in Madrid	UPM
12:50 – 13:00	Wrap-up and conclusions	PoliBa/Valuedo

### List of participants

- Politecnico di Bari (**POLIBA**) represented by Giovanni Mummolo, Salvatore Digiesi, Francesco Facchini, Giorgio Mossa;
- Linköping University (**LIU**) represented by Janerik Lundquist;
- Universidad Politécnica de Madrid (**UPM**) represented by Joaquín Ordieres;
- Poznań University of Technology (**PUT**) represented by Marek Fertsch, Joanna Oleśków-Szłapka and Agnieszka Stachowiak;
- ValueDo (**VALUE**) represented by Alessandro Guadagni and Giuditta Pasta;
- INFOTECH (**INFO**) represented by Gianluigi De Pascale;
- TECNOLOGIE DIESEL (**TDIT**) represented by De Stena Felice, Scarpetta Claudio and Ciannamea Paolo;
- Implema (**IMPLE**) represented by Eskil Rehme;

- Arruti (**ARRU**) represented by Carlos J. Urueña.

Guadagni (VALUE) shortly wraps-up the main decisions taken on the first day of the project meeting corresponding deadlines.

## **R2.4 Body of Knowledge: brainstorming on the general structure and contents of the report**

Mummolo (PoliBa) presents (full presentation here) the overall framework of WP2 and introduces the topic of the Body of Knowledge (R2.4). According to the project description, WP2 will produce the following results:

- Ad-hoc designed questionnaires (activity already completed);
- State-of-the-art of the training needs required to prospective job-seekers (on-going activity, which will have as output the R2.3 – Training Needs Analysis);
- Production of the BoK upon which to reform the existing academic pathways, also in the light of the Industry 4.0 paradigm (next activity to be started as soon as R2.3 will be ready)

The other Universities have already had experience in the development of Body of Knowledge and Mummolo (PoliBa) asks them to share with PoliBa team this experience and knowledge. Stachowiak (PUT) remarks also that PUT has some experience in developing curricula of 1st and 2nd degree for Logistics, not for Industrial Engineering or Industrial Management, but that is available at sharing this knowledge.

Before starting with the brainstorming, Mummolo shares his perspective of the overall structure to give to the BoK:

- 1) Premise
  - Definition of the BoK
  - General Goal and Aim of the BoK
- 2) Training needs and gap analysis, that refer to results from R1.3 and R2.3 reports;
- 3) Guidelines for involving stakeholders
  - Interactions with companies, alumni, colleagues.

The partners discuss the definition of BoK. Even if the formal definition will be included in the draft version of the BoK to be prepared by Poliba, a first definition could be *“a framework that should allow HEIs to collaborate with companies to renew courses or even design a new program”*. The purpose of the BoK should be, then, to provide HEIs with a tool for explaining how to modify existing courses in IE&M basing on the findings of the Training Need Analysis. In fact, after the delivery of BoK, the partners will have to put into practice the information contained in the document in the following WP3, when they will be asked to revise one course for each University (total 4 courses). The aim of the project is to provide advice to modernize their courses to meet the new needs of the I4.0 challenge.

As far as the methodologies to be adopted in the new courses are concerned, Ciannanea (TDIT) says that many companies are already implementing “Talent programs” focusing on technical skills, especially in I4.0, and they often use cases that are extremely useful for bettering understanding complex topics. Moreover, to understand which are the most relevant topics he proposes to refer and

analyze the courses that the companies are already addressing. We will find out, he says, that companies focus on technical skills rather than on soft skills that can not be taught in a short time.

Oleśków-Szłapka (PUT) suggests that the main chapters in BoK should be the same as described in the project proposal: 1. theoretical framework; 2. technical specifications for redesigning IE&M courses. Stachowiak (PUT) agrees: the BoK's structure is what we need to discuss and following the regular approach: Knowledge, Skills, Social Skills would make it useful and easy to implement by HEIs. Ordieres (UPM) proposes to use-cases to better present to the students real cases that can make it clear what digitalization is in the real world.

Fertsch (PUT) thinks that the partnership should adopt a modular structure for the final renewed curricula for IE&M, as this will help to better divide the major topics and techniques, and should ease the revision according to the emerging needs of I4.0. It is clarified that proposing a new fully redesigned IE&M Master Program is the WP5 objective. This should happen, according to the project workflow, when the partners will have already modified one course according to the provisions of the BoK, piloted it and revised it according to the feedback received by the partners.

Lundquist (LIU) stresses the importance of focusing on the contents of the BoK, which will be an important product not only for the partnership but also for other IE&M Universities. Thanks to the interpretation to give to results from WP2, the partners will be able to test the contents of the BoK including them in specific courses. The innovativeness of the IE3 project is providing guidelines for other Universities for informing them what is new and what can be done for improving their educational courses. In other words, in WP5 the partner universities will be responsible for starting a process of revision of the whole IE&M course, in full compliance with the information and data collected while implementing WP1 and WP2, and the feedback received on WP3 and WP4. The aim of WP5 is the creation of a new course blended with the e-learning courses developed by partner Universities.

At the end of the discussion, the partners agree that what was initially stated in the project description is still valid after having conducted the training needs analysis. Consequently, the BoK should be conceived both as a conceptual framework (therefore the presentation of the challenges) and a set of technical guidelines for designing renewed courses in IE&M (i.e. the practical suggestions that the IE3 partnership provides to other higher education institutions to review course topics, methodologies training, etc.). Because the main gaps are identified in some transversal competences, HEIs should think about how to include them in their courses. One idea, to be confirmed in the BoK, could be the adoption of innovative and different training methodologies (such as the "flipped classroom" methodology, group assignees, etc.) for the development of some specific skills.

The BoK will be delivered by the end of October as already scheduled, so to be tested in WP3 when the partners will be asked to revise one course. If partners see that improvements are needed, they can always edit the BoK in a future stage, after the piloting of the courses.

### **Planning:**

PoliBa will prepare a more detailed workflow for preparing the BoK. This should also contain a more detailed definition of what is intended with "Theoretical framework" and "Technical specifications" and a proposed index of the document.

Then, as the BoK will be feed with the information collected in R2.3, the document will be developed when the main contents of the training needs analysis will be better clarified and interpreted. (exp. End of September 2020).

## WP8 - Planning external evaluation by experts on ML3 – Body of Knowledge

Ordieres (UPM) presents WP8 – External evaluation (full presentation [here](#)). During this presentation, Guadagni (VALUE) presents also the procedures for the Internal Evaluation that the partners must follow.

All the partners agree on this workflow:

- Partners to fill the excel file created by UPM at the following link <https://drive.google.com/file/d/10kledejOwyqUYQx0TEGMvXcT5wTHJTGa/view> by 15.09.2020
- UPM to prepare a draft of the semi-structured survey by the end of September 2020
- UPM to collect feedback/approvals to run the MLs assessment by the beginning of November 2020
- The partners to validate the BoK during Madrid meeting in November 2020
- Depending on the decisions, approach to the external reviewers will be carried out during November – December 2020, looking to provide them the IE&M BoK and establishing the right time window for the interview.

## Overall presentation of WP3: objective, tasks, timeframe – LIU

Lundquist (LIU) presents the overall plan for WP3 (full presentation [here](#)).

A brainstorming on WP3 activities follows:

- Selection of the course: each partner should select the course to be renewed. The overall procedure foresees that the universities propose to LIU the course they would like to renew. LIU will check the 4 modules and will agree on that. In case the modules are much similar, LIU will ask the partners to change one. Also, LIU will later check that the courses selected are already included in the curriculum of the other universities.  
When selecting the courses the partner universities should keep in mind that we need to select one module that could be renewed in the light of the Industry 4.0 paradigm. The renewal should be coherent with the spirit of what the partners have done so far.  
The modules selected will be taught only at the University of the Country of provenience. The replicability of the course will be ensured by the e-learning courses.  
Partners agree that they will be able to clarify these issues when WP1 and WP2 will be finalized, as their outcomes will be fundamental for the choice of the course to renew.
- Methodologies: as the partners want to create something new, they could use micro-learning and active-learning for the practical implementation of the skills. All the partners will test the methodologies at the local level, and then they will reflect on the effectiveness of the methodologies adopted. The methodologies to be used will be detailed in the BoK.  
The partners must explain what they are going to change and what kind of renewal they are going to include in their courses. They could think about including a template in the action plan or the partners can just describe the changes they are proposing.
- Syllabus: the partners should present the syllabus as it was before the renewal and afterward, so to make clear what has been changed.
- Administrative tasks should be conducted individually by all the partners, at their local level.

In order to better organize the future work Guadagni (VALUE) will share two Google sheets that the University Partners are asked to fill in:

- One related to summer break, in order to better plan the next activities and being sure that all the partners can contribute effectively
- One related to academic years: this will ease LIU in understanding the workflow of the lessons in all the different countries involved and it will be easier to plan WP3 activities.

As the partner did not manage to conclude the meeting, Valuedo will send a doodle to fix another meeting to discuss the remained points of the agenda for next week. The next (and last) session will be focused on WP9 activities and a short discussion on the Madrid meeting. All partners agree.

Ordieres (UPM) proposes to remove from the agenda the discussion on WP4, as it is too early to discuss this topic now, as the WP2 is not yet completed.