



IE3_7th Skype Meeting
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Participants:

- POLIBA, represented by Giovanni Mummolo, Salvatore Digiesi and Francesco Facchini
- PUT, represented by Agnieszka Stachowiak and Joanna Oleskow Szlapka
- LIU, represented by Janerik Lundquist and Mathias Henningsson
- UPM, represented by Joaquin Ordieres
- VALUEDO, represented by Alessandro Guadagni and Giuditta Pasta
- TDIT, represented by Felice De Stena

Agenda:

- Discussion on the first proposal for the Body of Knowledge structure

Mummolo (PoliBa) shares with the partners some slides on the proposed structure of the Body of Knowledge. The suggested process is represented in the image below:

Flow Logic Scheme of a BoK

The Logic scheme refers to the Plan-Do-Act-Check continuous improvement Deming cycle in the framework of Quality of Higher Education in Industrial Engineering & Management (I4.0)

1. Define a set of Indicators quantifying the level of achievement of targets achieved by BoK Implementation

2. Survey Design

Demand (external) / Offer
(internal) Assessment

3. Carrying out the surveys

Need /Gap analysis

4. Criteria for Analysing Survey' Answers

5. Resources Assessment

Companies (Industry professors /
Labs /internship
• HEIs Professors' Competencies
• HEIs' Educational Infrastructure
• Digital Platforms
• Research/Educational
Labs
• ...

Identification of:
• Knowledge, Skill & Competences
• Operational Tools
• Knowledge Transfer Methodologies & Learning
Activities
to be considered in the design (new courses) or re-
design (existing courses)

Cross Analysis: Knowledge,
Competence Skill Need/Gap
vs. Available Resources

Design (new Courses) or
Re-Design (existing courses)

• De-composition in Knowledge Units
• Flexible integration of KUs in
courses
• Flexible Integration of Companies'
and HEIs' Res.

Constraints:
• Procedural rules
• Resource Constraints

Composition of Subjects
into Courses and courses
into programs

Also, it is important to keep in mind the contents we included in the project description:

R2.4 - Body of Knowledge (ML2)

The Book of Knowledge will emerge right from the gap analysis, comparing thus the finding of WP1 (offer side) and the findings of the training need analysis (demand side). The BoK should be conceived as both a conceptual framework and a set of technical guidelines for designing renewed courses in IE&M. This document will include:

- *An in-depth cross-analysis of both the educational offer and the training needs identified;*
 - *a summary of the contents to be included in the (new or restructured) courses;*
 - *A set of guidelines to reshape/create from scratch new university courses*
 - *A summary of the theoretical, practical, and behavioral skills to be acquired by students to become intrapreneurs within the I4.0 paradigm*
 - *The educational techniques and tools to achieve the result listed above*
- WP3 will be built upon the findings of this result.*

Answering Lundquist (LiU) question, Mummolo (PoliBa) explains that the texts included in the red boxes are a sort of draft index of the BoK, while the blue boxes are devoted to explaining the logic of the whole process. The rationale of the whole work is that by comparing the demand (of training) and the needs with the available resources (the contents of the available training courses) we can identify the areas where to improve the educational systems.

Along with the explanation of the whole process, the BoK should take into consideration also the experiences that the partners had in WP1 and WP2 (focusing, respectively on the assessment of the training offer and the analysis of the educational system stakeholders' training needs). Since the trigger of the process consists of gap analysis, the BoK should include guidelines and information about how to design and how to carry out surveys for conducting a proper need analysis, including practical suggestions based on the partnership experience in WP2. In other words, the BoK should be considered as a guide prepared by the IE3 partnership for other organizations that want to define the areas where to improve their training offer.

Ordieres (UPM) suggests stressing the point that our process (included in the figure above) is just one of the possible options for reaching the defined goal (renewing Master programs). We should show the overall workflows (red boxes) and present the project examples (blue boxes), stressing that there could be other ways of implementing the same process.

Mummolo (PoliBa) agrees and adds that we should detect the optimal balance between being generic and specific (our experience). Adding a collection of "lessons learned" could be a good way to help other Universities in performing gap analysis. In other words, our BoK should be general, as our path is just one of the possible paths for reaching the objects. In our proposal we followed an inductive approach: we experienced some situations, we faced some difficulties, we took decisions and now we are trying to generalize as much as possible the analysis to show other organizations a way for proceeding, even if this is not the only one. It is a parallel path.

To make the process clearer, Ordieres (UPM) suggests eliminating point 0. "strategic Goals" from the overall structure as strategic goals pertain their overall picture, i.e. each process of the PDCA scheme. The partners agree.

Joanna (PUT) approves the proposed plan and suggests the partners reading the document [Skill Development for Industry 4.0](#) that includes some relevant information for the project. She also suggests visualizing in the form of a mind map/diagrams what are the areas of Industry 4.0 and what

skills are required (*A summary of the theoretical, practical and behavioral skills to be acquired by students to become intrapreneurs within the I4.0 paradigm*).

Taking into consideration also WP3 activities, Lundquist (Liu) suggests the following workflow: once we will have the BoK all the Universities will take the results and embed them into the renewal of the course. It is important to point out that not all partner Universities have the same freedom in adapting the course content. After the testing of the new courses, the partners will discuss the results and the BoK, if needed could be adapted according to the lessons learned from the real experience.

Referring to one of the main contents of the Bok "*A set of guidelines to reshape/create from scratch new university courses*" the partners agree to include just a generic reference to common guidelines, leaving the possibility to each University to experiment with different methodologies and tools into their courses. After the testing phase, all this information will be processed to be included in the final version of the BoK.

Proposed Workflow:

- PoliBa to prepare a first document adopting the discussed methodology by the first half of November
- Partner Universities to revise the overall/conceptual framework and include their contribution.

For what concerns WP3 activities, Lundquist reminds the partner the deadline of 04.11.2020 for sending the proposal of the course to renew.