Social Network based doctoral Education on Industry 4.0

TIPHYS Industry 4.0

Introduction

PhD students in every discipline and in every country are a small group of individuals, everyone with a personal and specific learning history and therefore a completely different training. They have usually different goals in their study that will be synthesized in the PhD Thesis. The training offered by every University cannot satisfy the specific needs of a small population of students. Therefore, PhD students usually see a dichotomy between their specialized study goal and the generalized training offered by their University.

Teamwork is made difficult because every PhD student usually is involved in a different study. Usually, the team composition for a specific research is made of a professor, one/some research assistants and a PhD student. Professor and research assistants are engaging in several researches with different PhD students, by splitting their time. The team is hierarchic and not peer levelled and the team's goal is the research outcome while the PhD student main goals are to learn a discipline and to work on research project.

Therefore, it is difficult that a group of PhD students in the same University be engaged in shared learning activities and be able to constitute a learning team. The networking of learning activities among PhD students from different countries is limited to the student exchange programs that are on an individual basis.

Objectives

The objectives of the project are to build an **Open Networked Platform** for the learning of Industry 4.0 themes dedicated to PhD students.

The students will be able to co-create their learning path and the learning contents and dynamic student teams will be created for every specific learning requirement. Teams will be composed by students belonging to all the European countries. Teams will interact using a Social Network application, therefore there will not be necessary the physical presence.

Key Action

Present Key Action will address these issues by adopting modern learning strategies and by exploiting innovative ICT technologies. The **learning strategies** are **Social Network-Based Education** (**SNE**) and **Constructive Alignment**.

In the view of educational paradigms, the concept of **SNE** could be seen as a model that integrates features of the education 3.0 paradigm. In SNE, students and teachers are seen as participants that form a network, in which the network structure, communication, learning process and behaviour exhibit features of a social network.

Constructive Alignment (hence CA) has emerged from the work of John Biggs as outstanding principle for devising effective and efficient pedagogical activities in higher education. In particular, CA builds upon two main concepts: the constructivist understanding of the learning process and the practical need for aligned and outcome-based curricula designing.

In a nutshell, **SNE** is focused on **teamworking**, building of **interaction networks** among students and teachers of different Universities and Countries. **CA** gives the necessary **common framework** for sharing educational objectives among different institutions and different teaching methodologies.

The ICT technologies we exploit are the **MOOC** (**Massive Open Online Courses**) platforms and the virtual reality. MOOC allow to offer a networked multinational learning content without the need of physical movement of students and teachers among the Universities. Virtual reality is necessary to allow a proper interaction of the students with laboratory activities that are specific of every University. This is particular important as the object of present Key Action is the education in the field of Automation.

Transnational cooperation is mandatory for the success of the project because:

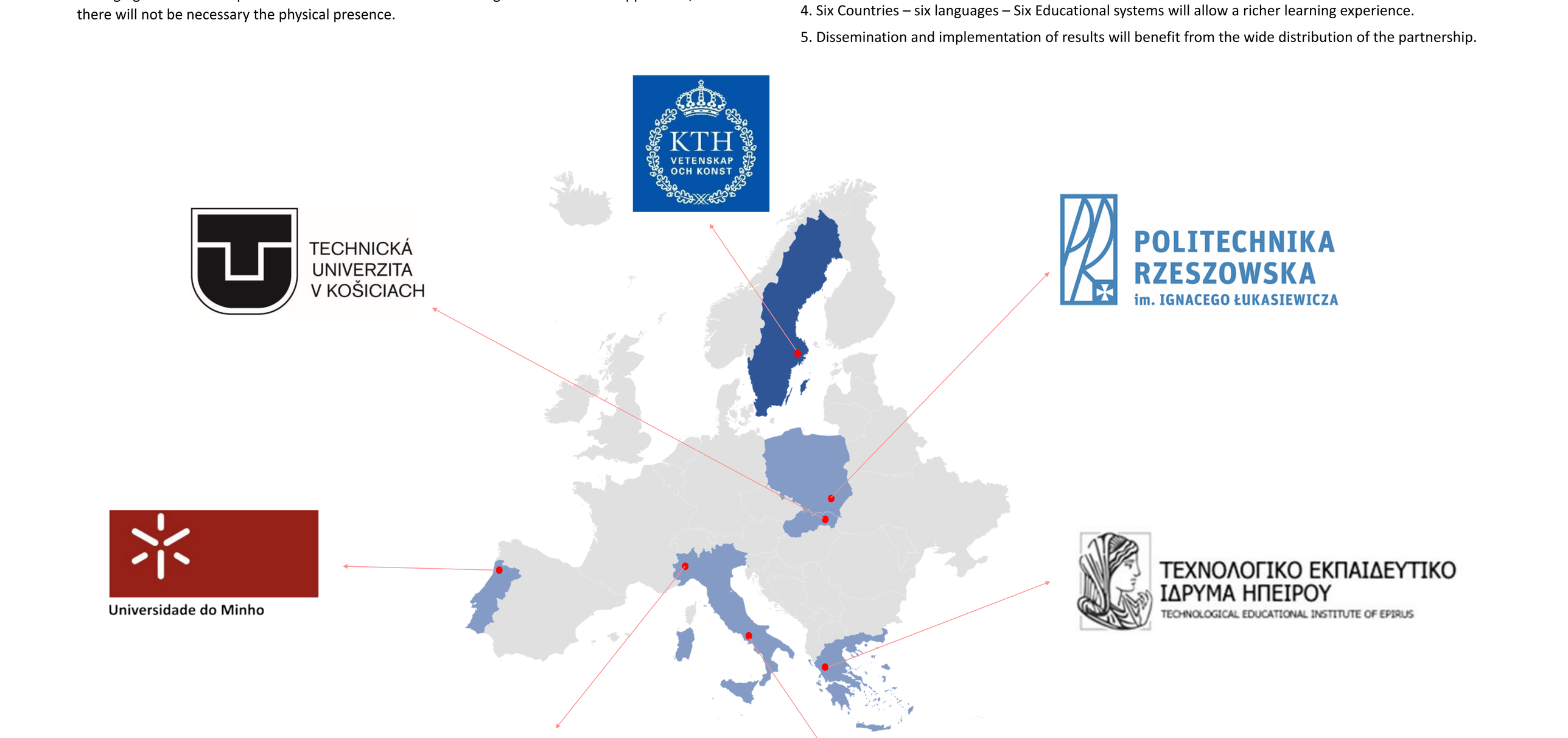
1. Allows to reach the critical mass of students in order to justify the effort in setting up the course

2. Cluster together the knowledge, information and best international practice about Industry 4.0: the theme is so wide that no partner can claim to be able to master it entirely.

3. Allows to enhance access to international educational best practices, which can be used and compared, and exchange knowledge

4. Six Countries – six languages – Six Educational systems will allow a richer learning experience.

5. Dissemination and implementation of results will benefit from the wide distribution of the partnership.



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