

Fit for 4.0 - Training Teachers and Trainers to the 4.0 paradigm

Call for proposals EAC/A03/2018

Erasmus+ – Key Action 2: Strategic partnerships in the field of education, training and youth

Deadline: March 21st, 2019

Concept note

A few background thoughts

- The labour world is highly dynamic, especially in the high-tech oriented sectors, like electronics, mechatronics, etc. Digitalization, globalization and internetworking are changing and challenging all kinds of enterprises, the big ones as well as the small and medium ones. In order to keep VET sustainable, it is important to adapt the training betimes and foster a broad consensus and a close cooperation between teachers, trainers, learners, VET providers, companies, social partners and chambers.
- Teachers and trainers are not always well/fully prepared to that: maybe some of them tend to adopt the same (sometimes old fashioned) methods; maybe some of them are not fully aware of on-line tools for learning, teaching, assessing; maybe some of them do not interact with each other as much as possible; maybe some of them are not that keen to change their minds and habits; maybe some of them are not used to closely co-operate with companies; maybe some of them are not keen to involve students that much in the learning process; maybe some of them need a clearer picture of the nature, implications and real meaning of the Industry 4.0 paradigm.
- The project focuses on this challenge: it aims at identifying competence and qualification requirements for VET teachers and trainers and at developing and piloting training modules for both. This should be done in close cooperation with companies.
- As the project originates from digitalization and Internet, training modules of course will have to be embedded in the digital era. They will be offered for e-learning (e.g. in a MOOC environment) and are supposed to combine appropriate methods with targeted competences. The search for appropriate free learning platforms and tools for the provision of the training modules will be part of the project: at the end the modules will be freely available and accessible for all, and the project is expected to develop an open environment where teachers and trainers, no matter if belonging to partner organisations or not, can add material and suggestions, contribute to discussions, populate a wiki database.
- A digital world requires adapted training methods. Aim of the project is to combine new learning requirements with fitting methods and also to develop assessment methods who face the new challenges, e.g. interactive learning with OER, active pedagogical approaches with collaborative methods, by actively integrating learners and educators in the process.
- Teachers and trainers should be trained to inter-disciplinary and cross-sectoral teaching methods, with a combination of theory and practice, school and work-based learning, in cooperation with experts from experienced companies.
- The modules are supposed to be used and recognized Europe wide, therefore the EU quality standards as defined in ECVET and EQAVET are considered. Quality assurance mechanisms in VET in line with EQAVET recommendation will be developed, e.g. by establishing continuous information and feedback loops based on the learning outcomes.

Objectives

- increasing quality of teachers and trainers;
- increasing skills of teachers and trainers;
- favouring co-operation between teaching/training and businesses.

Duration

22-24 months (indicatively from October 2018 to August 2020). This duration should be checked against tasks and expected outcomes. In my personal opinion, it could go up to 27-30 months, but I leave it to a common decision.

Total budget

Indicatively 450.000 €, for 36 months.

Proposed methodology and phases

1. We will start from last year's proposal, for example saying that we will develop the following modules:
 - **What is the 4.0 paradigm**, that is, the scenario underpinning a full value creation chain for goods and services, in a globally interconnected world, including risks and critical points. This could be the introductory unit.
 - **Technologies enabling the 4.0 paradigm**, that is, a survey on key technologies relating to 4.0: system integration, IoT, simulation, additive manufacturing, cloud computing, augmented reality, Big data, Cybersecurity. The goal is not to train professionals in these topics, but to make learners aware of the possibilities connected to such technologies, and their implications.
 - **How to develop and deliver “4.0” training modules**, that is, how to design learning in line with the 4.0 paradigm and how to guide learners. This has a lot to do with instructional design and to embedding 4.0 options in each training module. It is about methods (WBL, project work, etc.) and about (e.g. including suggestions about a number of free on-line tools for teachers for co-operative learning, for polling, for organising, for assessing, etc.)
 - **4.0 as an interdisciplinary VET subject**, that is, how to embed 4.0 in whatever topic taught, e.g. teaching production managed by information gathering in cooperation with mother language and maths, or “analysis and reporting of key numbers”, etc.
 - **Assessing competences in a 4.0 environment**. Assessment cannot follow traditional ways, when learning is not. So we could think about strategies for improving assessment.
 - **Teaching and business, business and teaching**: how to improve co-operation between teachers, trainers and companies. in other words, how can an expert teacher understand companies and work with them, and how can a company technician develop skills typical of coaches or trainers.
2. Training modules for trainers we will develop should be based on learning outcomes, making a pervasive (and clever) use of IT tools, and prepared in close connections with hi-tech, innovative companies in partner territories. They could be made available on a MOOC platform.
3. Partners, together with companies, could also develop a set of additional resources for trainers, like case studies, examples of training material, etc.. All material should be made available on the project web portal, and made open to contributions by a wider public of teachers and trainers.
4. The above could then be piloted in partner organisations, and results used to tune and finalise all developed material into guidelines and recommendations.

Ideally, we could divide the performance period into the following phases:

1. Definition of structure of training modules and of technical specifications for the MOOC platform
2. Development of platform and training modules
3. Peer review (each partner testing modules they did not develop, or cross-checking other modules)
4. Pilot run on a restricted number of testers (teachers and trainers internal to partner organisations or belonging to “friend”/supporting organisations)
5. Feedback and adjustments
6. Delivery on larger scale

Expected intellectual output

1. A competence profile for teachers and trainers in the “Industry 4.0” world.
2. A resource pack for teachers and trainers, including the above mentioned training modules complete with:
 - examples of training material;
 - case studies;
 - references to other organisations, projects, resources in general;
 - etc... (but we should add something in the project proposal).
3. A project web site, collecting all the above and making them open to teachers and trainers from any school/college/training centre, university. The website should be open itself, and allow the knowledge database to grow up, thanks to contributions by the public.
4. Guidelines/handbook for teachers and trainers, including all the above, reviewed and finalised after piloting them in partner organisations and others.

Please note that we have a relevant issue here: in which languages should we prepare the material? I guess that English will be the common development language, but then, to be effective, we need translations in national languages, and unfortunately the budget is not large enough to pay for that... shall we do them on our own with internal staff? Should we extend the project duration, in order to get more money (and to have time enough to translate)? Or? Your suggestions on this point are very welcome.

Envisaged partnership and partner roles

<i>n.</i>	<i>Organisation</i>	<i>Place and country</i>
1	I.F.O.A.	Reggio Emilia, Italy
2	Artesis Plantijn Hogeschool	Antwerpen, Belgium
3	BFI-OÖ	Linz, Austria
4	EDUGEPE	Setúbal, Portugal
5	Göteborgs Tekniska College	Göteborg, Sweden
6	JAMK	Jyväskylä, Finland
7	North West Regional College	Derry, United Kingdom-Northern Ireland
8	Zealand Business College	Ringsted, Denmark
9	European Forum for Technical Vocational Education and Training	Brussels, Belgium
10	METID – Department for Innovative Learning Methodologies of Polytechnic of Milan	Milan, Italy

As a thumb rule, it would be great if each partner could take care of:

- co-ordinating development of one training module;
 - co-operating with another one in developing one (different) training module;
- plus:
- leading at least one work package (or the preparation of one intellectual output). The table here below summarizes activities/output to be produced.

Meetings

As an average, the consortium will meet every 5/6 months, that is, 5 times in total.

A possible pattern could be: Italy, Portugal, Finland, Sweden, Italy.

As a general rule, all meetings will follow a similar pattern, and include among the rest:

- project coordination, technical and financial state of play, quality management, next steps, etc.;



- short study visits to examples of best practices, sharing and discussion. Each partner will have the chance to invite stakeholders (trainers? experts from companies? other?) to take part and get involved in the process;
- possible multiplier events.

Multiplier events/learning/teaching mobilities

As you know, multiplier events are possible (and sometimes required) in order to disseminate project output. Nevertheless, organising a multiplier event is not always an easy task: it is not that easy to gather enough external people to discuss something that is very “project-specific”. So, I leave to you the decision about hosting, or not, such events. In case, in order to leave budget enough also for the development of intellectual output, we will limit foreseen attendance to max. 20 people per multiplier event. Please consider that –as we will not have one meeting per partner country– such events should mostly be focused on local/regional dissemination of project outcomes. As an alternative, we could organise short mobilities for people (trainers) from our own staff, visiting partners in turn, to learn from their experiences... Let me know if you think this could be worthwhile in your opinion. Please, do not forget that of course this will “absorb” money from intellectual output. In any case, we would like to have at least one final multiplier event in Italy.