Grant agreement number: 779730

D7.7 Mid-Term Network Activity Report

Due date: 30/04/2019

Lead participant name: ULB

Status: F (final, update)

Dissemination level: PU (public)

Last updated: 30/11/2019 (V3.1)

Document History

Issue Date	Version	Changes Made/Comments
15/05/2019	V1.0	draft report
30/06/2019	V2.0	edits and re-format
30/11/2019	V3.0	Update on KIC contact, network growth strategy Final edit for publication
20/07/2021	V3.1	EU funding statement update as per review request

Disclaimer and Acknowledgment:

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No 779730. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe research.

Any opinions expressed in this report are solely those of the authors and neither of the FCH 2 JU, nor the European Commission or its representatives.

Table of Contents

About TeacHy

As the FCHT industry gradually emerges into the markets, the need for trained staff becomes more pressing. TeacHy2020, or short TeacHy, specifically addresses the supply of undergraduate and graduate education (BEng/BSc, MEng/MSc, PhD etc.) in fuel cell and hydrogen technologies (FCHT) across Europe.

TeacHy2020 will take a lead in building a repository of university grade educational material, and design and run an MSc course in FCHT, accessible to students from all parts of Europe. To achieve this, the project has assembled a core group of highly experienced institutions working with a network of associate partners (universities, vocational training bodies, industry, and networks). TeacHy offers these partners access to its educational material and the use of the MSc course modules available on the TeacHy site. Any university being able to offer 20 to 30% of the course content locally, can draw on the other 80 to 70% to be supplied by the project (and its successor entity that will support the platform post-project).

This will allow any institution to participate in this European initiative with a minimised local investment. TeacHy will be developing solutions to accreditation and quality control of courses, and support student and industry staff mobility by giving access to placements. Schemes of Continuous Professional Development (CPD) will be integrated into the project activities. We expect a considerable leverage effect which will specifically enable countries with a notable lack of expertise, not only in Eastern Europe, to quickly be able to form a national body of experts.

TeacHy will offer some educational material for the general public (e.g. MOOC's), build a business model to continue operations post-project, and as such act as a single-stop shop and representative for all matters of European university and vocational training in FCHT. The project partnership covers the prevalent languages and educational systems in Europe. The associated network has over 70 partners, including two IPHE countries, and a strong link to IPHE activities in education.

Deliverables Abstract

This deliverable covers the activities outlined in Task 7.1 taken from the TeacHy Description of Work Task 7.1:

Management and continual effort will be made to further expand the associate network through dissemination and engagement with FCH stakeholders

This report describes the contacts taken with the associated network members, the T.I.M.E. network members, and with the KIC Innoenergy organisation in order to inform these members on the progress made on the development of undergraduate and graduate education for students and trained professional in the field of Fuel Cells and Hydrogen (FCH) technologies.

1 Contacts with the associated network

The intention of the TeacHy project is to establish university Masters-level teaching material that will be employed across Europe. The University Network will assemble all associated university partners wishing to participate in this material but who are not partners of the consortium. It is planned to continuously expand this grouping in order to broaden the base of users of the material developed.

As far as governance goes, the associated network partners have a consultation role in project activities. Since they are not part of the Grant and Consortium Agreements, they are not able to cast a binding vote on project matters between core consortium and the FCH JU.

At the start of the project, the associated network partners were:

Vocational Training and Stakeholder Partners		
AV1	CAMPUS, Spa Franchorchamps	Belgium
AV2	UJV, Řež	Czech Republic
AV3	DVGW	Germany
AV4	CISM	Italy

University Network Partners		
AU1	University of Liège	Belgium
AU2	University of Louvain la Neuve	Belgium
AU3	IEES – Bulgarian Academy of Science	Bulgaria
AU4	University of Split (UNIST-FESB)	Croatia
AU5	University of Patras, FORTH-ICEHT	Greece
AU6	University of Western Macedonia (UoWM)	Greece
AU7	University Apris-Saclay	France
AU8	Hochschule München	Germany
AU9	University of Naples, Parthenope	Italy
AU10	University of Salerno	Italy
AU11	University of Udine	Italy
AU12	University of Trondheim/SINTEF	Norway
AU13	ZUT	Poland
AU14	National Hydrogen and Fuel Cell Centre NHFCC/ICSI	Romania
AU15	Jozef Stefan International Postgraduate School	Slovenia

IPHE University Partners		
IPHE1	FURJ/COPPE, Rio de Janeiro	Brazil
IPHE2	NTU	Singapore

The network of associated partners does not receive any funding. Nevertheless, they were committed to contributing to the project in kind.

It would have been a positive signal, if at least the travel expenses of the associated network members had been covered by the project budget. Nevertheless, in order to remain below the 1.25 MEUR recommended budget limit for the project, this idea had to be abandoned at the final proposal preparation stage.

All Associated Network partners were informed via the TeacHy newsletters on the progress of the project and were invited to the Project Gathering held in Brussels on 13 Nov 2018. The date of this project gathering was chosen just before the FCH JU review days and stakeholders forum (14 to 16 November 2018) in order to limit the travel costs for the associated partners. The success of this meeting, in terms of associated partner's participation, was limited (see deliverable D 7.2). This was probably due to a lack of communication with the N.ERGHY grouping (now Hydrogen Europe Research, HER) whose President decided to transfer the N.ERGHY grouping meeting from the morning to the afternoon of 13 November 2019 at short notice. As many associated partners are also members of the N.ERGHY grouping with a voting right, they participated in the N.ERGHY meeting instead of the project gathering event.

It is expected that a better coordination will be reached for the next meeting.

In order to cover the costs of the associated partners, the TeacHy consortium submitted a proposal for a COST action in 2018. Unfortunately, this proposal was not selected. It is expected that a similar proposal will be submitted to the spring COST call in 2020.

With the release of the Business Model deliverable D8.3 in 2020 to a larger audience it is expected that the Associate Network can be further grown. The TeacHy consortium, though, has decided to limit initial advertising in order to prevent a chaotic discussion around integration of new partners with conflicting expectations and curriculum requirements. The experiences made in the phase of accreditation of the course have given rise to caution in the way of how university administrations approach new programme implementation and accreditation. As (positive) experiences of universities will be the best advertising asset, it has been decided to carefully implement selected few courses and gradually expand from there (cf. Deliverable D7.3, on Associate Network development methodology).

2 Contacts with the T.I.M.E. network

The T.I.M.E. (Top Industrial Managers for Europe) network is an association of leading Technical Universities or Engineering Schools. All members have a strong international dimension in their research, teaching, and industrial relations and they are all committed to international cooperation, student exchanges, and recognition of studies abroad.

Founded in 1989 by Centrale Supélec (France), this association now contains 57 members in 21 countries in Europe, Australia, Brazil, Canada, China, Japan and Russia (www.time-association.org/membership/list/).

The main activities within the association are:

- double degree in engineering,
- educational projects funded by the association, and
- networking for EU-funded projects in education,

with specialised task forces working on the topics:

- Africa,
- digital education, and
- doctoral education.

It is in the frame of this activity that the TeacHy project is mentioned on the T.I.M.E. webpage (www.time-association.org/eu-projects/).

An e-mail was sent to all T.I.M.E. members at the beginning of the TeacHy project informing them of the objectives of the project and its organisation.

The progress of the TeacHy project were presented during the following T.I.M.E. meetings:

General assemblies:

- October 12-13, 2017, Instituto Superior Técnico, Lisboa, Portugal, and
- October 3-5, 2018, Escola Politécnica -USP, São Paulo, Brazil.

Advisory Committees:

- February 5-6, 2018, Lund university, Lund, Sweden,
- June 30 - July 1st, 2018, TU Darmstadt, Darmstadt, Germany, and
- February 7-8, 2019, ETSI Sevilla, Sevilla, Spain.

T.I.M.E. members were invited to participate in the Gathering events on 13 Nov 2018 and 21 Nov 2019 in Brussels.

An intensive discussion was held between the TeacHy project coordinator, Prof Robert Steinberger-Wilckens, ULB representative Prof Jean-Luc Delplancke, and T.I.M.E. member Prof Torsten Fransson (retired KTH professor) on the potential of using T.I.M.E. web resources for publishing TeacHy material on 26 Aug 2019. Communalities and differences were explored with the main conclusions:

- T.I.M.E. teaching material is freely available through the network web site;

- copyrighting is not considered a problem since the material is offered for free usage by the network partners;
- it is structured in a different way from the TeacHy syllabus in that it offers more and smaller units;
- it is not quite clear how these units could be assembled into a module and course structure that could be accredited at a university;
- it did no become clear, how the material is currently used in degree courses throughout the network;
- the material is more suitable for self-study and CPD usage than for a university degree, although the level of knowledge is in principle adequate for a university degree course.

It was agreed to further pursue the options at next opportunity. Prof Delplancke is participating in establishing T.I.M.E. educational material by compiling teaching units on battery technology. Mutual compatibility of concepts will be further explored using such examples for guidance.

3 Contacts with the EIT KIC InnoEnergy

Through the T.IM.E. network, contact was made with Prof Torsten Fransson, who is working for the European Institute of Innovation and Technology (EIT).

The EIT is an independent EU body that intends to increase Europe's ability to innovate by nurturing entrepreneurial talent and supporting new ideas.

Its mission is to:

- increase Europe's competitiveness, its sustainable economic growth and job creation by promoting and strengthening cooperation among leading business, education and research organisations, and to
- power innovation and entrepreneurship in Europe by creating environments for creative and innovative thoughts to thrive.

To strengthen Europe's ability to innovate, action is needed to overcome the fragmented European innovation landscape. The EIT brings together leading organisations from business, education and research, the so-called 'knowledge triangle', to form dynamic cross-border partnerships, i.e., the EIT Innovation Communities.

The roles of an Innovation Communities (KIC) are to:

- Develop innovative products and services
- Start new companies
- Train a new generation of entrepreneurs

The EIT KIC InnoEnergy is the innovation engine for sustainable energy across Europe. It supports and invests in innovation at every stage of the journey – from classroom to end-customer. With the KIC InnoEnergy network of partners, connections across Europe, bringing together inventors and industry, graduates and employers, researchers and entrepreneurs, businesses and markets, are built.

The EIT KIC InnoEnergy works in three essential areas of the innovation mix:

- Education to help create an informed and ambitious workforce that understands the demands of sustainability and the needs of industry.
- Innovation Projects to bring together ideas, inventors and industry to create commercially attractive technologies that deliver real results to customers.
- Business Creation Services to support entrepreneurs and start-ups who are expanding Europe's energy ecosystem with their innovative offerings.

Inside the EIT KIC Innoenergy, Professor Torsten Fransson is coordinating the building of a Micromaster in energy storage. This stackable Micromaster will be available on the Learnify platform (https://innoenergy.learnify.se/l/) and will be open to all persons interested in learning how to store energy. The cooperation with Professor Fransson intends to ensure that hydrogen and fuel cells technologies will be covered by modules in this Micromaster. An example of such a module containing reference to reversible fuel cells is given here: https://innoenergy.learnify.se/l/show.html#Yy0K

In the future, when the TeacHy modules will be fully ready, discussions will be started with KIC Innoenergy in order to make reference to the TeacHy Master program and/or to include some of the Teachy modules in the stackable Micromaster. This could indeed open access to fuel cells and hydrogen technologies to a worldwide community of students. Nevertheless, the quality differences between the KIC Micromaster and a university degree need to be kept in mind and carefully assessed in order to avoid disappointment and misalignment of concepts.