



## A holistic and Scalable Solution for research, innovation and Education in Energy Transition

### D1.2 ASSET ecosystem activities M8

Work Package	WP1 ASSET ecosystem and networking
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## Executive Summary

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ASSET - A holistic and scalable solution for research, innovation and education in energy transition - is an EU project funded under the Horizon 2020 programme.

The goal of the project is to create a sustainable and scalable community which brings together all energy transition and education stakeholders (companies from the energy sector, universities and training actors, authorities and policy makers and the society at large) so as to enable a continuous bottom up creation of research, the development of research, innovation and educational (RIE) services and capacity pooling.

The aim of this document is to review the achieved values of Key Performance Indicators (KPIs) and take any corrective action needed while reporting on the energy transition network scalability and academia-industry dialogue.

ASSET offers a platform where targeted actors collaborate and exchange resources to cultivate and better exploit all the competencies required for the energy transition. For this purpose, the first, out of three, roadshow (workshop) was held in Milan, Italy, gathering EU, national and local stakeholders from the industry, academia, research and policy making field around Energy Transition Know-How. The results from the roadshow will be used to better target stakeholder needs and expectations, but also be provided as a reference in future project outcomes and sustainability.

The challenge of the energy transition towards a low carbon society is without parallel and requires efforts from all sectors of the economy. The main challenges include up-skilling the energy sector's personnel, cultivating new talents with multidisciplinary competencies and intensifying research and innovation activities within universities in close coordination with the industry sector. A significantly closer relationship between the industry and academia is therefore required to achieve the sustainability of the green energy economy. Consequently, inter-sectoral mobility both serves as an engine for harmonising the synergies between industry and academia and creates many opportunities for innovation and improvement with mutual resource sharing. Within the ASSET project, five relevant mobility mechanisms have been selected and reviewed as to identify the potential barriers and draw recommendations for their correct implementations. The five mechanisms are: 1) Industrial researchers as lecturers, 2) Internships, 3) Collaborative doctoral education, 4) Bachelor-/ Master-Thesis, and 5) Joint industry/academia projects.

In line with the objective of the ASSET project to address the need of both companies to up-skill and train their employees, and of individual engineers to improve their knowledge, skills and competencies, an ASSET educational programme marketplace has been established. The platform allows any interested users to search or ask for a programme that meets their needs. The ASSET marketplace addresses multiple EQF levels and learning styles and supports bottom-up programme creation.

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## List of Acronyms

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Abbreviation / acronym	Description
GDPR	General Data Protection Regulation
IPR	intellectual property rights
KPIs	Key Performance Indicators
KSCs	Knowledge, Skills, Competences
MOOCs	Massive Online Open Courses
NGOs	Non-Governmental Organisations
POS	Public Outreach Strategy
Q&A	Questions and Answers
R&D	Research and Development
RECs	Renewable Energy Communities
RIE	Research, Innovation and Education
Rescoops	Renewable Energy Sources Cooperatives
WP	Work Packages



# 1. Introduction

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## 1.1 ASSET overall scope

ASSET - *A holistic and scalable solution for research, innovation and education in energy transition*- is a Horizon 2020 project, financed under the topic LC-SC3-CC5 "Research, innovation and educational capacities for energy transition".

The overall scope of the project is to create a community which brings together all energy transition and education stakeholders (companies from the energy sector, universities and training actors, authorities and policy makers, research centres, associations and society at large) and to deliver the framework and means for continuous collaborative definition of the knowledge-competencies-skills-capacities required for the energy transition. Resource pooling, interdisciplinary approach and bottom up creation of innovative educational services will be the core of the ASSET platform, which will allow to efficiently train a new generation of energy-sensitive citizens as actors of the energy transition process.

## 1.2 Deliverable's scope and contents

This deliverable falls under WP1 ASSET ecosystem and networking and will report on the energy transition network scalability and academia-industry dialogue. The objective of this deliverable is to review the achieved values of Key Performance Indicators (KPIs) and take any corrective action needed. This ecosystem activity report is the first one and will be followed by two other reports along the lifetime of the project.

Within the scope of the ASSET project objective to create an ecosystem – community, gathering targeted actors and exchanging resources, a first roadshow (workshop) has been organised by the consortium of the project. Roadshows contribute to strengthening the network with industry, cities, regions and key societal actors and to allow them to experience the benefits of participating in the ecosystem. The tasks which produced the outcomes of this deliverable build on the Public Outreach Strategy defined in a previous deliverable (D1.1) to attract and engage the targeted actors and create strong links between them.

Section 2 of this deliverable therefore reports on the background, purpose and outcomes of this first roadshow. The main results are emphasised aiming to draw recommendations, follow up actions and takeaways for the following roadshows and the project itself.

Section 3 of the deliverable reports on the agreements for the implementation of the mobility support mechanisms. The aim of this section is to review the commonly practiced mobility support mechanisms and to identify the challenges and barriers. A list of recommendations is drawn out from these observations and a report on the agreements for implementation is established. To conclude this third section, an action plan is detailed.

Section 4 reports on the establishment of the ASSET marketplace aiming to support academia-industry communications. The marketplace offers industrial actors a platform to search for courses and programmes, and to make enquiries when their needs are not met. This section therefore defines the rationale and specifications of the said market place, including the identification of user types.

## 1.3 Relation to other WPs and tasks

WP1 is building the ASSET ecosystem by recruiting actors from all ASSET target groups including universities and research centres, industrial partners from the energy sector, social actors and policy makers. It is in this work package where the appropriate means for the communication between all these actors are detailed. This WP delivers valuable insights on industrial needs for Knowledge, Skills and Competencies (KSCs) so as to guide the definition of training needs which takes place in WP2.

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This deliverable will particularly report the outcomes of Task 1.2 on the Energy transition network scalability and Task 1.3 on the Academia-Industry dialogue as to review the achieved values of key performance indicators and take any corrective action needed.

## 2. Ecosystem activities

### 2.1 Report of Roadshow 1

#### 2.1.1 Background and purpose of the roadshows

The ASSET project aims to create an ecosystem - community, where targeted actors could collaborate and exchange resources to cultivate and to better exploit all the competencies required for the energy transition. In particular, the ASSET consortium targets the relevant stakeholders, gathers them through workshops, exchange views, collects their feedback and engages them in the project's future actions. The synergies created through the exchanges will be reflected in project outcomes and will serve directly for the future sustainability of the project.

The objectives of ASSET Roadshows are to address and engage different stakeholders such as industry, academia, researchers, policy makers at EU, national and local level, to make them aware about project objectives, solutions and outcomes, but also to gather valuable feedback to be used into the project steps. ASSET will then disseminate main findings, which could be useful as well for policy makers and training actors. Roadshows are important part of ASSET stakeholder engagement and communication activities as planned by the POS (Public Outreach Strategy). According to the strategy, there are some reasons why stakeholders' debate and engagement through roadshows are key for the project. First, the project aims to be of practical value. Stakeholders and relevant groups could bring national knowledge to the project and such knowledge can help to assess the possible costs and benefits of energy transition within a country context and to identify the emerging challenges. For example, while industry or public sector representatives can voice their needs and expectations, academia and research can put forward the best available knowledge from academic sources or implemented actions; in this way, interactions with stakeholders can assess better options within the decision context of the country or region concerned. Second, ASSET's aim is to explore how contextual factors such as economic, social and political, can shape successful deployment and diffusion of mitigation options in the energy transition. Stakeholders' inputs are crucial to understand the said contextual factors and identify appropriate measures to address them. Finally, in order to ensure that the main conclusions from ASSET are focused on the right groups of decision makers in the right forms, it is important that the project consults with stakeholders on communication and dissemination strategies at EU and national level and collaborates with them on the implementation. This aspect of stakeholder engagement is dealt with in POS strategy, but also through WP5 on communication and dissemination of project results. For example, 4 communication campaigns are foreseen to address different stakeholders groups (businesses and policy makers, students & employees, energy citizens, universities and training actors) through focused and targeted messages.

Overall, ASSET partners decided to organise three roadshows in different geographical areas by targeting relevant stakeholders that could be interested and engaged:

Roadshows	Date	Target groups
Italy	18 November 2019	All relevant stakeholders at national level
Spain	20 February 2020	All relevant stakeholders at national level
Brussels	To be defined	EU policy makers and national representatives of industry, academia, local authorities and citizens

**Table 1: Roadshows planned in the lifetime of the ASSET project**

The results from different roadshows will be used to better target stakeholder needs and expectations, but also be provided as a reference in future project outcomes.

## 2.1.2 First Roadshow

### 2.1.2.1 Preparatory steps

The first roadshow took place on November 18<sup>th</sup>, 2019, in Milano, Italy, and gathered 50 participants overall. The aim of this first event was to involve key representatives from the main stakeholder groups (companies, policy makers, universities and training actors, associations) to exchange views and collect feedback on the way forward to prepare the ASSET services and e-learning contents.

The ASSET consortium decided to organize the first roadshow in Italy for the following reasons:

- 3 out of 11 ASSET partners are from Italy and they are representatives of different ASSET target groups (Universities, Companies, Energy Communities);
- ènostra is the partner responsible for the outreach and engagement strategy (D1.1);
- Italy is a strategic country within Europe to map the energy transition process, since the national energy system is still very centralized and, despite having high potential, the uptake of renewable energy technologies is slowed down by a widespread social mistrust.

The event has been organized by ènostra, in collaboration with the other 2 Italian partners, Logical Soft and Università Federico II di Napoli.

The decision to organize the event in Milan comes from the fact that many of the identified stakeholders are based in Milan or in the north of Italy. Moreover, the event was organized in partnership with the Energy Department of Politecnico di Milano University, which has been organizing for over 10 years a post-graduate master (Master Ridef<sup>1</sup>) focused on climate change and sustainable energy issues, which is fully in line with ASSET's training goals.

The title of the event has been defined with the aim to keep an explicit reference to the ASSET payoff ("Just for energy transition drivers"):

*"ENERGY TRANSITION KNOW-HOW: MAP YOUR NEEDS, TRACK YOUR ROUTE, EMPOWER YOURSELF"*

The energy transition process is itself a path, a journey, and the words "map", "track", "route" all recall the idea of a "driver", who is looking for its target destination.

In order to allow for a fruitful and inclusive discussion among the participants, it was decided to organize an event by invitation only and to keep the overall participants number within 50-60 people.

Thus, all ASSET partners contributed to collect the first list of potential subjects to invite, based on the main stakeholders' categories identified within the POS (D1.1):

- Universities, Research centres and training actors
- Policy makers, authorities, public administrations, market regulators
- Companies from the energy sector
- Societal actors (NGOs, consumers' associations, professional associations, trade unions, industrial associations, chambers of commerce)
- Energy citizens (individuals as potential energy citizens, prosumers (producer & consumer), Renewable Energy Communities - RECs, Renewable Energy Sources Cooperatives - Rescoops and Rescoops federations)
- Students (university) and new employees

Ènostra made a selection within the collected contacts and sent out the personal invitations, in full respect of the GDPR rules.

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<sup>1</sup> <https://www.ridef2.com/>

### 2.1.2.2 Structure and set up of the roadshow

The event took place between mid-morning (10.30 am) and mid-afternoon (16.30 pm), in order to allow people coming from outside Milan to join the event. The welcome coffee and the lunch break gave the chance to participants to know each other and informally discuss among themselves.

The agenda of the event was structured as follows.

The Roadshow started with a welcoming speech by **Fabio Inzoli**, the Director of the Energy Department of Politecnico di Milano, and by **Davide Zanoni**, ènostra Council Member.

Thereafter **Maurizio Bavetta**, (EU Commission, Directorate-General Joint Research Centre, Energy Efficiency and Renewables Unit), gave a speech on Energy transition policy framework and social challenges.

To conclude the morning session, Sara Gollessi (ènostra), Walter Cariani (Logical Soft) and Anna Maria Zaccaria (Università Federico II di Napoli) gave an overall presentation of ASSET project, objectives and ongoing activities.

After the lunch break, two parallel sessions were organized to discuss and analyse different issues related to the energy transition and finally, the participants joined again in a plenary session to share and discuss the outcomes of parallel sessions and to extrapolate some overall thoughts and recommendations.

The full programme of the event is included in Annex I.

The agenda was set up with the aim to limit the speakers' presentations frame and to allocate most of the time to debate, discussion, Q&A.

The two parallel sessions were hosted in smaller meeting rooms equipped with a big square table, to allow participants to see each other during the discussion. A whiteboard was included in each room to help moderators take notes during the debate. The participants were split between the two sessions trying to find a match between the session's focus theme and each participant's professional experience and role. The overall participants' number per session was however balanced and representatives of policy makers and societal actors were included in both groups.



### 2.1.2.3 Content of roadshow



The event was opened by a welcome speech by **Fabio Inzoli** (Politecnico di Milano, Energy Department Director) who gave an overview of the educational programmes, the research activities and the collaborations with companies and institutions of his department.

He underlined the role of academic institutions in defining and promoting new professional profiles, which can meet the market evolving needs.

Thereafter, **Davide Zanoni** (ènostra council member) introduced the experience of ènostra and the challenge that the cooperative is facing to evolve from a laboratory of participatory experiences to an official energy transition actor, who raises awareness among members and citizens and contributes to influencing the energy policy framework from local to EU level. In fact, despite EU energy policies recently recognized the role of Energy Communities within the energy transition process, at the Italian national level there is still insufficient awareness of their role and benefits to promote local development.



The floor was then given to **Maurizio Bavetta** (EU Commission, Directorate-General Joint Research Centre, Energy Efficiency and Renewables Unit), who gave an overview of the policy framework and the social challenges related to the energy transition process, with a specific focus on alternative fuels for air transports, energy efficiency in buildings, energy storage and hydrogen production, high efficiency cogeneration. He also explained how the target of EU policies is progressively shifting from the promotion of a technological replacement (renewable sources instead of fossil fuels, energy efficiency, electric vehicles) to raising awareness and citizens engagement towards

a behavioural modification (decrease of energy consumptions, use of highly efficient technologies, sustainable mobility).

EU energy policies and targets are ambitious (carbon neutrality) and aim to modify the overall energy production and consumption model: it is not sufficient to shift from fossil fuels to renewable sources, but it is necessary to reduce the total consumption. Moreover, these targets shall be achieved involving the weakest social categories, since energy poverty is an issue concerning many EU countries.



Afterwards there was a short speech by **Lorenzo Pagliano** (Politecnico di Milano, Director of Master Ridef), who presented the experience of Master Ridef, the adopted interdisciplinary approach and the educational objectives. He underlined that the Master involves students coming from very different learning backgrounds (from engineering to SSH) and this encourages the debate and the exchanges among participants with reference to their different methodological approaches and cultural schemes.

Finally, the 3 Italian partners (ènostra, Logical Soft, Università degli Studi II di Napoli) gave an overall presentation of the Asset project:

- ➔ **Sara Gollessi** (ènostra) presented the ASSET general scope and specific objectives, the partners represented in the Consortium, the time schedule and the main activities, the target groups,



the ASSET Community and the Forum tool, the conceptual scheme used to define and build the educational contents, together with the list of the 25 training courses which will be delivered during the project.

- ➔ **Walter Cariani** (Logical Soft) described the methodological approach used for the elaboration of the "*RIE needs related to energy transition*" report (D 2.2) and the obtained results, pointing out the specificity detected for the different EU countries and the different technological fields (Energy efficiency, Renewables integration, Smart grids and energy systems), and sewing up with the next research steps. An overview of the Communication and Dissemination activities was also given.
- ➔ **Anna Maria Zaccaria** (Università Federico II di Napoli) presented the ongoing research on the social challenges related to the energy transition process, describing the employed methodologies (quantitative: questionnaires; qualitative: ethnographic research), the stakeholders involved, the analytical dimensions of the questionnaires and the in-depth experts' interviews. She also introduced the digital platform [EMMA, developed by the University Federico II within a previous EU project, which will host the Massive Online Open Courses \(MOOCs\)](#) which will be delivered within the ASSET project.



A short explanation of the logistics and objectives of the afternoon parallel working session was briefly presented before the lunch break.

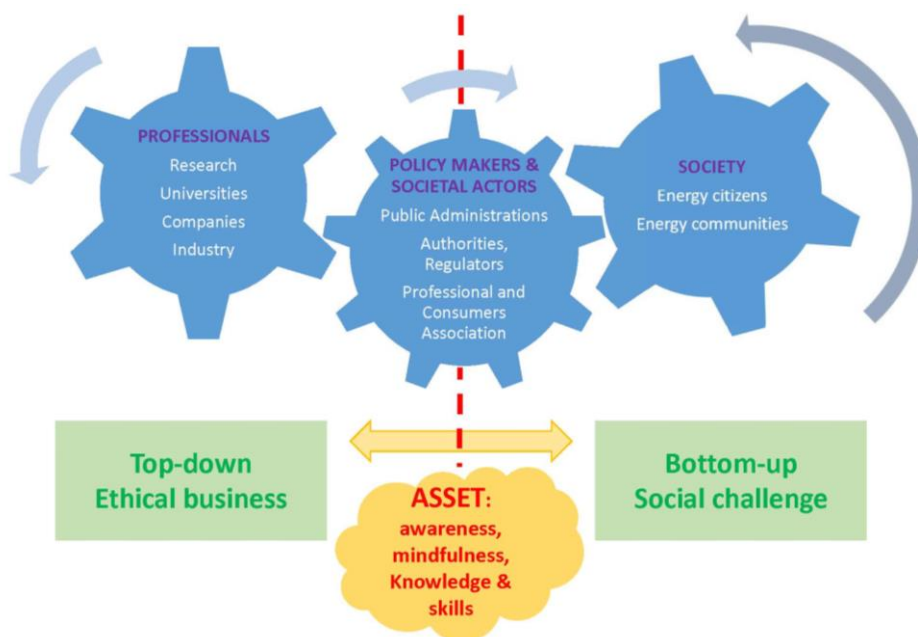


Figure 1: Stakeholders' interaction within ASSET

After lunch, the participants were divided into **2 working groups** in order to carry on a parallel round table discussion focused on two different topics.

Moderators introduced the session specific focus and discussion points, stimulated and managed an open debate, highlighting the key emerging inputs on a billboard. Policy makers were particularly engaged in the discussion since they represent the linking gear between all the other stakeholder groups.

❖ **Session 1 - Market role & policy rules for a top-down approach to energy transition**

Moderator: Lorenzo Pagliano,  
Politecnico di Milano

Participants: Aisfor, AMAT, Arera, Banca Etica, European Commission, EF Solare Italia, EASE, Elettricità Futura, ENEA, ènostra, Falck Renewables, Fire, Green Jobs Hub, Logical Soft, Politecnico di Torino, Regione Lombardia, Sasso srl, Università Federico II di Napoli, Università Statale di Milano, Wartsila.



The moderator opened the session giving some interesting cues to stimulate the debate:

- the global increase in primary energy consumption is neutralizing the efforts for energy production decarbonization;
- electric engines installed on traditional vehicles are not able to guarantee satisfying environmental performances, since fine particulate emissions are due to other vehicles intrinsic characteristics: we should focus on sustainable mobility instead of just electric mobility;
- to adopt a uniform and unambiguous nomenclature is a key factor to allow for proper policy implementation and for the achievement of the corresponding targets.

Then the participants tried to answer the following questions:

- Which are the new required professional profiles?
- Which are the emerging training needs?
- Which improvements are needed in the current educational programs?
- How to ensure an interdisciplinary approach?
- Which is the role of research?
- Which synergies could be promoted between market and education actors?
- Which is the role of policy makers and regulators?

The discussion touched the following points:

- Policy makers and regulators should not set only final targets, but also define feasible and gradual strategies to reach them since the market replacement of conventional technologies and the uptake of innovative technologies need time and flexibility;
- The contribution of EU countries to global emissions reduction is important, but not considerable compared to other countries (US, China). However, EU countries can significantly contribute to the energy transition in terms of research, innovation, knowledge and services to be disseminated outside the EU.
- Political stability and citizens' awareness are key factors to promote the energy transition process since they allow for long term policy implementation and behavioural changes.



- "Energy transition" is an expression already used since the 80s and it is time to revise its meaning: to start up a positive trend is not enough anymore; we shall meet specific objectives;
- CO2 capture is a promising solution, but is not yet reliable and should be included in a mix of strategies;
- The current energy consumption is no more sustainable: the optimisation of energy production, the use of renewable energy sources and the shift from fuels to electricity are not sufficient, we need to reduce the energy consumptions and renounce to some.
- Local communities, especially in small and medium size urban centres, should be sensitised and involved in the energy policies definition and implementation and should be directly engaged in the energy production. Some virtuous energy companies are already experiencing collaborative and inclusive models (e.g. Falck Renewables<sup>2</sup>).
- Students need to be trained on the energy transition issues starting from the high school level, in order to put the basis for their future studies but also to shape conscious citizens,
- A mapping and updating of the educational and training programs are needed, especially for some key professional profiles, such as surveyors and building designers
- An interdisciplinary background is fundamental for all the professional profiles involved in the energy transition issues;
- A highly needed new profile is the "energy transition mediator", who is a professional with basic interdisciplinary competences, but with extensive communication skills and conflict resolution abilities, namely capable to understand the different points of view, to mediate among them and to effectively explain the policy decisions.
- Companies should adopt internal policies to raise awareness among their workers and offer them information (training courses) and instruments (e.g. incentives for use of public transportation)
- Universities and energy companies should strengthen their collaboration, both in research and training fields, to ensure that graduated students can find a job and companies can hire the needed professionals.
- Public administrations should invest more (time and resources) in training their officers involved in energy transition related fields (energy, climate change and quality of the air, transports, local development, education). An interesting solution could be to promote the mobility of officers among different public administration, in order to exchange experiences and information.

### ❖ **Session 2 - The empowerment of energy citizens for a bottom-up energy transition**

Moderator: Anna Maria Zaccaria, Università Federico II di Napoli

Participants: Adiconsum, AMAT, Azero CO2, Canale Energia, Ecomill srl, ENEA, ènostra, Genitori Antismog, Logical Soft, NEMO, Politecnico di Milano, Politecnico di Torino, Provincia di Monza e Brianza, RSE, Università d'Insubria, Università degli Studi di Torino, Università di Trento, WEEC.



Then the participants tried to answer the following questions:

- Which are the main social challenges related to the energy transition?

<sup>2</sup> [https://www.falckrenewables.eu/sostenibilita/community-integration?sc\\_lang=it-IT](https://www.falckrenewables.eu/sostenibilita/community-integration?sc_lang=it-IT)

- How to raise awareness about energy transition issues?
- How to share and guarantee free access to knowledge?
- How to promote new employing opportunities?
- How to promote local community development?

The discussion touched the following points:

- The energy transition is a very complex issue and since this expression is overused, especially within the media channels, there is a large space for abuses and misunderstandings. This is why information and knowledge are key elements.
- Information about the energy transition should be: clear, complete, freely accessible and scientifically correct. It also needs to be holistic, namely to consider different aspects such as technical, environmental, economic and social aspects.
- Universities can play the role of promoters and guarantors of this knowledge.
- Education and training cannot be assigned only to academic institutions: other training entities should be involved in the promotion of specific courses focused on energy transition' topics (In Italy there are still very few of them).
- Policy makers and regulators shall make efforts to use a clear and unambiguous language and ensure consistency among the different policy frameworks.
- Local administrations have a key role in the energy transition processes and should invest more (time and resources) in training their officers involved in energy transition related fields.
- A severe limit is a mismatch between the duration of political and administrative mandates (short) and the necessary time frame to implement energy policies and achieve some first results (long). The interruption of the started processes causes in turn mistrust towards policy makers and promoters. On the other hand, the concrete examples of virtuous administrations can promote emulation and boost the energy transition process.
- Energy Communities seems to be the most effective instrument to train citizens and involve them directly in the energy transition. Despite the lack of a national legislation, many initiatives are developing in Italy which aims to group citizens and promote self-local energy production.
- With reference to education and training, there is a need of an interdisciplinary and holistic approach.
- A highly needed new profile is the "energy transition mediator", who is a professional with basic interdisciplinary competences, but with extensive communication skills and conflict resolution abilities, namely capable of understanding the different points of view, to mediate among them and to effectively explain the policy decisions.
- The energy transition process can open the door to a redefinition of the relationships, still highly hierarchical, between central (urban) and marginal areas (internal areas, mountains, borders), through the repossession of energy resources by local communities and the consequent redistribution of benefits (economic, social and environmental) and social disparity mitigation.

A subsequent **panel session** was then organized to give the participants of the two parallel working groups the possibility to hear about the outcomes of the other group, summarized by the two sessions' moderators, Lorenzo Pagliano and Anna Maria Zaccaria.

**Gianluca Ruggieri** (è nostra Vice-President and researcher at Univerisità dell'Insubria) moderated this last session and summarized the main interesting point raised by the participants, some relevant inputs for the ASSET project activities and the overall key messages emerged during the day.

A Q&A slot followed, where participants mainly asked about the future ASSET project developments and the possibilities to be involved in the activities.



A brief presentation of some other projects focused on energy transition and awareness raising was done by some participants: ASSIST<sup>3</sup>, Greening the islands<sup>4</sup>, SmartEdge<sup>5</sup>, Muse Grids<sup>6</sup>.



The event was closed by Sara Capuzzo, ènostra President, who wanted to thank the participants for their presence and the fruitful discussion. She also highlighted that the involvement of citizens is the key element of the energy transition: energy communities can play an essential role and promote an energy revolution, by overturning the energy system and promote a bottom-up approach.

## 2.2 Main recommendations and future challenges

Besides the specific points raised during the two parallel sessions, some common elements emerged during the event:

- Energy Transition is a complex process and needs to be tackled through a multidisciplinary and holistic approach, integrating different disciplines and different stakeholders' know-how, without self-referential attitudes
- Access to appropriate education and training opportunities shall be offered to all the involved stakeholders: students, citizens, officers, employees
- Trustworthy information sources are needed to tackle misinformation
- Universities can be guarantors of the reliability of the educational contents
- New professional profiles (energy transition mediators) are needed, provided with interdisciplinary competences and extensive communication skills and conflict resolution abilities
- All the social actors must be involved in the energy transition, from EU and national governments to local administrations, including companies, academic institutions and citizens.
- Each citizen must be aware of the ongoing energy transition process and should take part in it, by bringing changing instances in their training or working places and thus triggering a chain reaction, an energy revolution
- The needed energy revolution requires some sacrifices (reduction of energy consumption, behavioural changes), but encompasses also many benefits (economic, environmental, social) and this needs to be better highlighted
- Policy makers and public administrations should play a guiding and supporting role for bottom up energy transition initiatives and cannot represent an obstacle due to the lack of appropriate competences or political opportunistic choices; there is a need for a new ruling class: trained, qualified, available to listen and determined in tackling the new challenges and achieving concrete results.

With reference to future ASSET's developments, the main hints collected during the event, which will be tackled within the learning contents preparation are:

- employ an interdisciplinary approach;
- embed SSH into technical subjects, with special focus on communication and mediation aspects;
- differentiate the education and training offer for specific stakeholders and target groups with different needs, knowledge and cultural background;

<sup>3</sup> <https://www.assist2gether.eu/eng-home>

<sup>4</sup> <http://www.greeningtheislands.net/>

<sup>5</sup> <https://www.interregeurope.eu/smartedge/>

<sup>6</sup> <http://www.muse-grids.eu/>

## D1.2 – ASSET ecosystem activities M8

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- approach the learners as energy citizen even before than employees or policy makers;
- contribute to the creation and spreading of a common energy transition vocabulary.

The event allowed also the Italian partners to extrapolate some interesting input with reference to the national context:

- the Italian education and training system rely merely on academic institutions, with few professional training actors and without a specific policy framework for this kind of institutions. To address this point, professional associations will be engaged in the ASSET Community in order to assess the education and training needs which are outside the academic institutions' scope.
- Policy makers and public administrations officials need to be up-skilled with reference to specific energy transitions topics, but public administrations can invest few resources (money and working time) to train their workers. To address this point, ASSET partners will involve public administrations within the ASSET Community in order to elaborate innovative targeted training schemes.

Despite a national legal framework for energy communities is still lacking, many local initiatives are blooming in Italy and can give a valuable contribution to raise awareness and promote the education and training of informed energy citizens. ASSET can support these bottom-up enterprises by delivering targeted learning contents and formats.

## 3. Mobility support mechanisms

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### 3.1 Introduction

This chapter outlines the need for industry-academia inter-sectoral mobility, identification of best practices for mobility support and recommendations for the implementation of the mobility support mechanisms for universities. A set of possible mechanisms have been reviewed from various EU projects and researches focusing on inter-sectoral mobility [1], [2], [3]. To support the dialogue on mobility implementation among the actors of the ecosystem, data are collected from the participating universities, research groups, and companies regarding the most frequently applied mobility support mechanisms. Based on the adaption frequency and success rate, best practices supporting the inter-sectoral mobility are identified. Five concrete mobility mechanisms have been selected for the ASSET implementation to meet the desired key performance indicators (KPIs). Possible barriers and challenges associated with these mechanisms are highlighted and recommendations for successful implementations are presented. Since this report drafts the ecosystem activities by M8 (Dec 2019), therefore, only definitions and basic implementation guidelines for mobility support mechanisms are included in this chapter. These mechanisms will be closely monitored throughout the project lifetime and corrective actions will be taken to achieve the targeted KPIs.

### 3.2 Need for Inter-sectoral Mobility for Energy Transition

The challenge of the energy transition towards a low carbon society is very huge and requires efforts from almost all sectors of life. The major challenges that need to be focused mainly include, a) up-skilling the energy sector's staff, b) cultivation of new talents with multidisciplinary competencies, c) intensification of research and innovation activities at universities in close coordination with the industry for commercialisation and production of the innovative research. These challenges cannot be addressed without bridging the link between industry and academia; therefore, it requires a significantly closer relationship between the industry and academia than the existing one for the sustainability of the green energy economy. Inter-sectoral mobility not only serves as an engine for harmonizing the synergies between industry and academia but also creates many opportunities for innovation and upgrade with mutual resource sharing at both ends.

Mobility between academia and industry is loosely coordinated today as reported by the Universities of the consortium, which operate in diverse countries and frameworks. The main barriers are the establishment of trust between academics and industry (especially in the case where their cooperation creates IPR objects) as well as the absence of a systematic way to implement it. Mobility support mechanisms will act as a catalyst to formulize the industry academia collaboration in an effective and systematic manner. To boost the multi-sectoral collaboration, various mobility support mechanisms are reviewed from another H2020 project [1]. The best practices are identified and recommendations for systematic implementation are highlighted. Moreover, ASSET leverages the experience of its multi-sectoral consortium to boost the already existing interactions between its industrial and university partners. Therefore, through the implementation of mobility support mechanisms, ASSET will boost both mobilities from universities to companies and vice versa so that their aims converge towards the realisation of the low carbon economy.

### 3.3 Commonly Practiced Mobility support mechanisms

In order to identify the most effective and commonly practiced mobility support mechanisms, various researches and EU projects dedicated to boosting the industry-academia mobility have been reviewed. In particular, mobility mechanisms reviewed from H2020, Science 2 Society project [1] are selected to support the dialogue on mobility implementation among the actors of the ecosystem. A list of commonly employed mobility support mechanisms is further investigated from the perspective of sustainability, ease of tailoring, and expandability in terms of regional and local context. This list mainly includes:

- Industrial researchers as lecturers in the Universities
- Collaborative Bachelor-/ Master-Thesis
- Collaborative doctoral education
- University Student internships in the Industry
- Joint Industry/academia Projects
- Joint training networks
- Creating a Research Centre/Centre of Excellence

### 3.4 Assessment of Mobility Support Mechanisms

In order to assess the employability of these mobility support mechanisms, data regarding the frequency of implementation is collected from the ASSET members. The partners are asked to fill in the relevant data for each selected mobility support mechanisms. Table 2 contains the data regarding the implementation of identified mobility support mechanisms during the last 5 years within their university, research group or company.

No.	Industry Academia Mobility Support Mechanism	University Partners					Company Partners			Total
		RWTH*	AAU*	UPV*	UWA*	UNINA	ATOS	ENOSTRA	ECOPOWER	
1	Industrial researchers as lecturers	2	5	10	10	30		0	30	87
2	Bachelor-/ Master-Thesis	3	0	15	0	100		0	5	123
3	Collaborative doctoral education	1	1	3	0	10	1	0	0	16
4	Student internships	125	3	15	0	200	10	5	5	363
5	Joint Projects	50	10	25	0	30		0	0	115
6	Joint training networks	0	0	0	0	3		0	0	3
7	Creating a Research Centre/Centre of Excellence	1	1	0	0	1		0	0	3

**Table 2: Data of employed Mobility Support Mechanism across the university/company during the last 5 years**

\*corresponds to the data of the research group involved from the partner university

Table 2 shows that out of the identified mechanism, the frequency of implementation is higher for the first five elements in the list i.e. 1) Industrial researchers as lecturers, 2) Collaborative Bachelor-/ Master-Thesis, 3) Collaborative doctoral education, 4) Student internships and 5) Joint industry/academia projects. Moreover, it was informed that at the RWTH Aachen University, all master students in engineering are required to carry out a three-month internship at companies or research centres, which results in about 8000 such internships per year. Based upon it, these five mechanisms have been short listed for implementation for the framework of the ASSET project lifetime. Initially, in the proposal draft, only first four mechanisms were selected for the implementation. However, based upon the dialogue and input from various partners an additional mechanism i.e. Joint industry/academia projects has been included within the list of implementation. The remaining two reviewed mechanisms i.e. joint training networks and creating a centre of excellence are extensive in their approach and require intensive financial and technical commitments between industry and academia. These mechanisms are generally employed through long-term collaborations and



formulation of common ground objectives, therefore, for a two-year project as ASSET, implementation of these mechanisms is out of the scope.

### **3.5 Recommendations for ASSET Mobility Support Mechanism**

The recommendations for mobility support mechanisms considered for implementation, including barriers, challenges and the way forward to effective implementation, are detailed. The KPIs will be closely monitored throughout the life of the project and, based upon the feedback of implementation, these recommendations will be updated in the upcoming deliverables.

#### **3.5.1 Industrial researchers as lecturers in the Universities**

Experienced researchers from industry companies lecture in Universities to share first experiences about practices in industry, knowledge gap between industrial practices and university teaching, and more particularly the key skills, knowledge and competencies required from the industry's perspective. This gives the students, on the one hand, a realistic view on the industry in certain application domains, on the other hand, it allows the lecturer to create awareness around certain topics and increase the number of students that will continue a career in those fields. Therefore, by inviting industrial researchers as lecturers, students will not only gain the industry insights, but they will also be inspired to advance their career in the field and technologies related to the energy transition.

There can be multiple modes to adopt this type of lecturing based upon the target student class. For undergraduate students, an industry researcher can be invited as a visiting lecturer for the whole semester and for graduate as well as Ph.D. programs, the generally adopted practice is to conduct a short course/seminar series as a full day or two days activity. Another practice, generally adopted by many universities is to invite industry researchers as an external evaluator MS and Ph.D. thesis of the students and before the defence, these industry researchers are asked to deliver a lecture related to their research topic and industry experience.

The major challenges for the implementation of this mechanism involve the flexibility requirements in the curriculum design such that industrial lectures may align their experience with the curriculum requirements. The availability and interest of experienced researchers is another challenge that needs to be systematically sought through close ties between industries and universities. The active participation in industry seminars and conferences can provide such venues to discuss mutual interests and resource sharing with an objective based approach. For ASSET implementations, the ecosystem capitalises its direct links to companies and company associations and will support (both from the organizational and financial point of view i.e. travel expenses) industrial researchers to teach to ASSET universities. The number of industry researchers as lecturers planned within the ASSET framework and coordinated by different members of the ecosystem have been highlighted in Table 3.

#### **3.5.2 Collaborative Bachelor-/ Master-Thesis**

A student works on a current research topic from the university or from an external company. An open task definition enables the development of new solution processes. During the work, the student must find innovative solutions to practical problems as a part of innovative research. This mechanism has challenges: it requires resources for its implementation and the major resources include the availability of clearly defined task, the willingness of industry supervisor, the willingness of university advisor and the coordination among them to track the thesis progress.

This is currently a common practice for all Universities in ASSET and the consortium intends to further boost and mainstream this method providing opportunities for cross-border mobility. Moreover, the ASSET mobility support tools, including marketplace and forum will act as a discussion medium for the ideas exchange and formulate new ties between students, industry supervisors and university advisors. Therefore, the main recommendations for the successful implementation require active participation in the forum where students, industry professionals and university professors can discuss the ideas, challenges and requirements for the collaborative actions. The number of BS/MS theses planned

within the ASSET framework and coordinated by different members of the ecosystem has been highlighted in Table 3.

### **3.5.3 Collaborative doctoral education**

In a Collaborative doctoral education, a doctoral candidate is supervised not only by a university but also from the industry. Collaborative doctoral education is of growing importance in Europe given the increased focus on innovation through R&D in order to advance towards a more "knowledge based" economy and the reality that a majority of doctorate graduates are destined for careers outside academia in both research and non-research positions. Therefore, the implementation of this mechanism ensures that the research conducted by doctoral students is of industrial relevance and doctoral students are better prepared for employment outside academia. It also ensures that the developments within the industry and companies involve state of the art research and innovation. However, the major barriers to the wide adoption of this model are the management of intellectual property rights (IPR), and the loosely coordinated mechanisms for its implementation.

Generally, doctoral students lack IPR knowledge and in many cases, industries exploit this situation. In other cases, where confidentiality concerns are involved, students tend to publish the results without the consent of the industry. Therefore, for the successful implementation of this mechanism, doctoral students must be trained for IPR management and various methods to ensure its implementation. The experienced universities in ASSET operate relevant departments, helping to overcome the barrier and prove to industrial partners that they can enjoy the benefits of these collaborations without jeopardizing their IPR and businesses. The other barriers to this model are the excessive involvement of doctoral students on non-academic activities and sometimes lack the freedom to develop innovative ideas. These barriers can be overcome by monitoring the student progress by both industry supervisor as well as a university supervisor and tailor the research directions according to the defined requirements. The number of collaborative doctoral programs planned within the ASSET framework and coordinated by different members of the ecosystem has been highlighted in Table 3.

### **3.5.4 University Student internships in the industry**

Student internships in the industry are one of the main mobility mechanisms to bridge the gap between curriculums in the universities and applied for work in the industries. In some cases, a dedicated (optional) course in the university curriculum allows an internship (4-8 weeks) at a company; while in other cases students join as internee for the summer semester. In both cases, the student sees how he/she can apply the knowledge in a company and learn how a career at that company might look like. In some universities, the students give a presentation to professors or senior delegates about the work carried out during the internship. Through the implementation of this mechanism, the student will learn about the applicability of their curriculum in real time industrial environments, which not only helps them building insights about their existing curriculum but also excites them to advance their career in that particular area instigating new research and development. The feedback of the internship students can help university lecturers to update their curriculum and benchmark their courses according to the industry requirements.

The main barrier to implement this model is the absence of any systematic support for matchmaking between the available positions and the students' interests. To facilitate the implementation of this method, a dedicated career service office may be setup within the university targeting the placement of fresh graduates and students within the relevant industries based upon their links with the local industry. The career service office can build effective ties with the local industry by actively participating in industry exhibitions and inviting relevant industries to student project exhibition, MS PhD seminars, colloquiums, or research conferences. For the ASSET project, ecosystem partners will mediate agreements for regular internships between its wide network of Universities and its wide network of companies. Once a University has an agreement with a set of companies, the students can more easily find available positions and the companies are confident of the level of knowledge and competencies of the graduates of a university department. As such, ASSET leverages its ecosystem population and direct interactions to establish multiple agreements between companies and



universities. The number of new internships planned within the ASSET framework and coordinated by different members of the ecosystem has been highlighted in Table 3.

### 3.5.5 Joint Industry/academia Projects

Joint industry/ academia projects are the key mechanism for harmonizing the synergies of industrial professionals, participating students and university professors. In some cases, professors from universities apply for projects and funding in collaboration with industries and engage students for the defined research task. Students then work with the industry to find solutions to practical problems as a part of their research task. The main challenge with this scheme is the absence of systematic mechanisms for task management and progress monitoring. These challenges can be overcome by defining the task for the students and setting some milestones for their research with the industry to achieve the desired objectives. The monitoring of progress and the achieved milestones will be a key factor in the successful implementation of these projects.

### 3.6 Implementation Plan for ASSET Mobility Support Mechanisms

Table 3 shows various mobility support mechanisms planned within the ASSET framework and coordinated by different members of the ecosystem. These mechanisms will be implemented following the recommendations drafted in the chapter. These mechanisms will be closely monitored throughout the project life and corrective actions will be taken to achieve the targeted KPIs. Based upon the evaluation of these mechanisms and feedback of implementation, subsequent deliverable D1.3 covering the ecosystem activities by M16 (August 2020) will include the extended guidelines and corrective actions for successful implementations. D1.4 covering the ecosystem activities by M24 (April 2021) will summarize the overall lesson learned throughout the project life and comprehensive guidelines for mobility support implementation as well as possible tailoring schemes to enhance their effectiveness.

No.	Industry Academia Mobility Support Mechanism	University Partners					Company Partners			Total	Target KPIs
		RWTH	AAU	UPV	UWA	UNINA	ATOS	ENOSTRA	ECOPOWER		
1	Industrial researchers as lecturers	0	2	1	2	0	0	0	3	8	>5
2	Bachelor-/ Master- Thesis	2	0	2	2	1	1	0	2	10	>10
3	Collaborative doctoral education	1	1	1	1	1	0	0	0	5	3
4	Student internships	1	0	2	0	1	1	1	2	8	>5
5	Industry/Academia Joint Projects	0	0	0	2	0	10	1	1	14	3

**Table 3: Mobility Support Mechanisms planned during ASSET project lifetime**

## 4. Mobility support tools

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### 4.1 Introduction

This section reports the activities carried out until M8 (December 2019) in the framework of task 1.3. This task is responsible for the implementation of all tools supporting academia-industry communications including (apart from questionnaires and dedicated blog channels) the ASSET marketplace where the industrial actors can search for courses and programmes and post their needs if no match is found.

### 4.2 Rationale and specifications of the marketplace

One of the main challenges that ASSET anticipates to address is the need for companies to up-skill and train their employees and for individual engineers to improve their Knowledge, Skills, Competencies. For this reason, ASSET provides an educational programme marketplace. In this platform, any interested user may search for a programme that satisfies its needs. The novelties that the ASSET marketplace offers are the following:

1. It addresses multiple EQF levels and learning styles (extending beyond just universities programs - as currently ATLAS does - and MOOCs - as currently EMMA does).
2. It supports easy programme search enabling search using keywords or attributes like discipline and topic, learning style (blended, online, face to face), EQF levels, program duration, group or individual learner targeted and any other that is identified during the requirements gathering and analysis phase of the project.
3. Supports bottom-up programme creation: users that do not find a program that suits their needs may (after registration in the platform) express an interest for a specific program defining at the same time whether this request is open to other program consumers. The training/education organisations may decide to reply to this interest and further pursue the creation and final delivery of the program. Additionally, other organization which may need it can declare their interest.

It is worth stressing that this marketplace does not follow the learning graph model adopted by the tutors and educational programme designers since the companies that are looking for educational programmes are not expected to be aware of the model that ASSET proposed for tutors/programme designers.

During the project lifetime, this will be a crowd-sourcing platform with no financial transactions in place. Within the ASSET project lifetime, the process will be validated and two programmes on demand will be developed.

### 4.3 User types

In this marketplace, two types of users are supported:

- a) **Type A: Companies/professionals:** they can be in principle organisations (private or public) or individuals who are willing to pursue an educational programme relevant to the energy transition. From the experience of the ASSET consortium partners and the feedback collected through the first roadshow, it seems that both individual professionals who want to acquire new skills, knowledge and competencies and organisations/companies are in need of educational programmes that match their needs. For example, with renewables penetrating the energy market, many energy companies in Greece are interested in up-skilling and retraining their personnel (who were educated when renewables were only nascent).
- b) **Type B: Educational programme providers:** they can be universities offering different types of courses targeting different EQF levels (at this point it is stressed that universities usually include departments dedicated to lifelong learning, apart from their main under and post

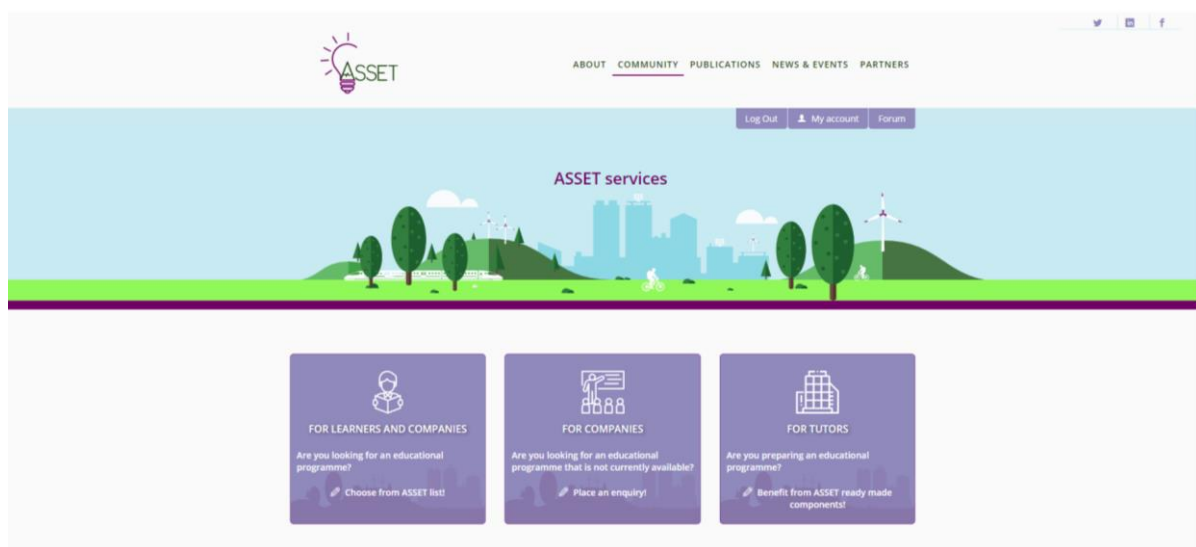
graduate study levels) or other training actors, like OTEA whose mission is to provide vocational training, although not specialized in energy.

Type A users can search for educational programmes and for inserting requests for such programmes.

Type B users can search for educational programmes, for announcing educational programmes they provide and for inspecting requests and replying to the initiator of the request.

It is worth mentioning that tutors are considered type B users. Within training organisations and universities, depending on the specific organisation, the design of a new educational programme may be proposed by high level management or by tutors themselves. So, type B users are those users that are eligible to announce a new educational programme or propose the creation of a new one.

The two types involved in the ASSET marketplace will use the two left hand side buttons in the landing page entitled “For learners and companies” and “For educational programme providers” as shown in Figure 2. The right hand side button entitled “For tutors” guides tutors to the learning graph tool developed under WP2 Energy transition skills identification and societal challenges and WP3 Energy transition programs preparation.



**Figure 2: The landing page of the ASSET community where the two left user types are those involved in the ASSET marketplace**

## 4.4 Functionality

The ASSET marketplace supports four main functions:

Function	Description	User type eligible for the function
Function 1	Education programme announcement Any educational provider (authorised by the platform) can announce the educational programmes it provides	User type B
Function 2	Search for an education programme	User types A and B
Function 3	Inquiry placement Inquiry placement by professionals (individuals or companies) that are interested in an educational programme that is not currently available	User type B

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Function 4	Inspection/placing replies to enquiries Inspection/placing replies to enquiries for new educational programmes. The educational providers	User type A
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**Table 4: The four functions of the ASSET marketplace**

The details and indicative print screens of the current version of the ASSET marketplace are included in the Annex II of this deliverable.

## 5. Conclusion

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The ASSET ecosystem activities including the report of Roadshows and the mobility support mechanisms and tools are designed to be a comprehensive, living document that seek to review the achieved values of Key Performance Indicators as to apply any corrective action needed.

The outcomes of the first roadshow held in Milan highlighted several matters. The energy transition is a complex process that requires a multidisciplinary and holistic approach, and that involves every social actor from EU and national governments to local administrations, including companies, academia and citizens. All involved stakeholders shall have access to appropriate education and training opportunities, especially as new professional profiles with interdisciplinary competences are needed. In order for policy makers and public administrations to play a guiding and supporting role for bottom up energy transition initiatives, the latter should be trained, qualified, available to listen and determined in tackling the new challenges and achieving concrete results.

Concerning the five concrete mobility support mechanisms identified in Section 3, other matters have been reached. By sharing their experiences, industrial researchers as lecturers portray to students a realistic view on the industry and raise awareness around specific topics, inspiring the latter to pursue a career in the field of energy transition. Collaborative Bachelor- and Master-theses require major resources and active collaboration between students, industry professionals and university professors to develop innovative solutions. Collaborative doctoral education focuses on research with industrial relevance, thus requiring close monitoring of the student's progress by both the industry and university supervisors to prevent IPR management risk and lack of freedom barriers. Student internships in the industry are one of the main mobility mechanisms to bridge the gap between curriculums in the universities and applied work in the industries, and which can be supported by a career service office within the university targeting the placement of fresh graduates and students within the relevant industries based upon their links with the local industry. The monitoring of progress and the achieved milestones will be key factors in the successful implementation of joint industry/academia projects, a key mechanism for harmonizing the synergies of industrial professionals, participating students and university professors.

Following on the outcomes and recommendations drawn out of these first observations, the ecosystem activities will be refreshed every eight months (M16, M24), to ensure it is providing the guidance ASSET needs to achieve its specific objectives. Based upon the evaluation of these mechanisms and feedback of implementation, subsequent deliverable D1.3 covering the ecosystem activities by M16 (August 2020) will include the extended guidelines and corrective actions for successful implementations. D1.4 covering the ecosystem activities by M24 (April 2021) will summarize the overall lessons learned throughout the project life and comprehensive guidelines for mobility support implementation as well as possible tailoring schemes to enhance their effectiveness.

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## 6. References

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[https://cdn5.euraxess.org/sites/default/files/policy\\_library/mobility\\_of\\_researchers\\_light.pdf](https://cdn5.euraxess.org/sites/default/files/policy_library/mobility_of_researchers_light.pdf)

## 7. ANNEX I: Agenda of Milan Roadshow

10:00	Reception and registration
10:30	<b>Welcome and opening</b> <i>Davide Zanon, ènostra; Fabio Inzoli, Politecnico di Milano</i>
11:00	<b>Keynote speech:</b> Energy transition and emerging challenges <i>Maurizio Bavetta, European Commission, Directorate-General Joint Research Centre, Energy Efficiency and Renewables Unit</i>
11:30	<b>ASSET project presentation</b> <i>Ènostra, Logical Soft, Università Federico II di Napoli</i> - Overview of the project and midterm results - Benefits for the various stakeholders - How to get engaged <b>Introduction to the parallel sessions</b>
12:20	<b>Q&amp;A</b>
12:30-13:30	<b>Light lunch</b>
13:30-14:45	<b>Parallel sessions:</b> open discussion around KCS (Knowledge Competences Skills) needs and possible ASSET contribution to meet them
	<b>Session 1 - Market role &amp; policy rules for a top-down approach to energy transition</b> <i>Debate on new professionals' profiles, training needs, educational programs improvement, interdisciplinary approach, research support to innovation, synergies between market and education actors, regulative framework, policy schemes.</i>  Participants: <i>companies, researchers, Universities, national and regional policy makers, regulators, professional associations, trade unions.</i>  Moderator: <i>Lorenzo Pagliano, Politecnico di Milano</i>
	<b>Session 2 – The empowerment of energy citizens for a bottom-up energy transition</b> <i>Debate on awareness raising, shared and open access knowledge, new employing opportunities, societal challenges, energy communities, local development.</i>  Participants: <i>citizens, energy communities, policy makers, consumers associations, environmental associations, students' associations.</i>  Moderator: <i>Anna Maria Zaccaria, Università Federico II di Napoli</i>
14:45	<b>Panel presentation of the parallel session's outcomes</b>
15:00	<b>Open debate and outlining of policy recommendations</b> Moderator: <i>Gianluca Ruggeri, Università dell'Insubria</i>
16:00	<b>Closing remarks</b> <i>Sara Capuzzo, ènostra; Lorenzo Pagliano, Politecnico di Milano</i>

## 8. Annex II: ASSET Marketplace - looking for an educational programme

In this annex, we detail the four functions listed in section 4.4.

Type A users can search for an educational programme by clicking on the relevant button on the landing page. On the page presented, they can search for educational programmes or place an inquiry. As shown in **Error! Reference source not found.**, at the top of the search page, the user can apply multiple filters to search in the available programmes list, while the whole list of available programmes follows.

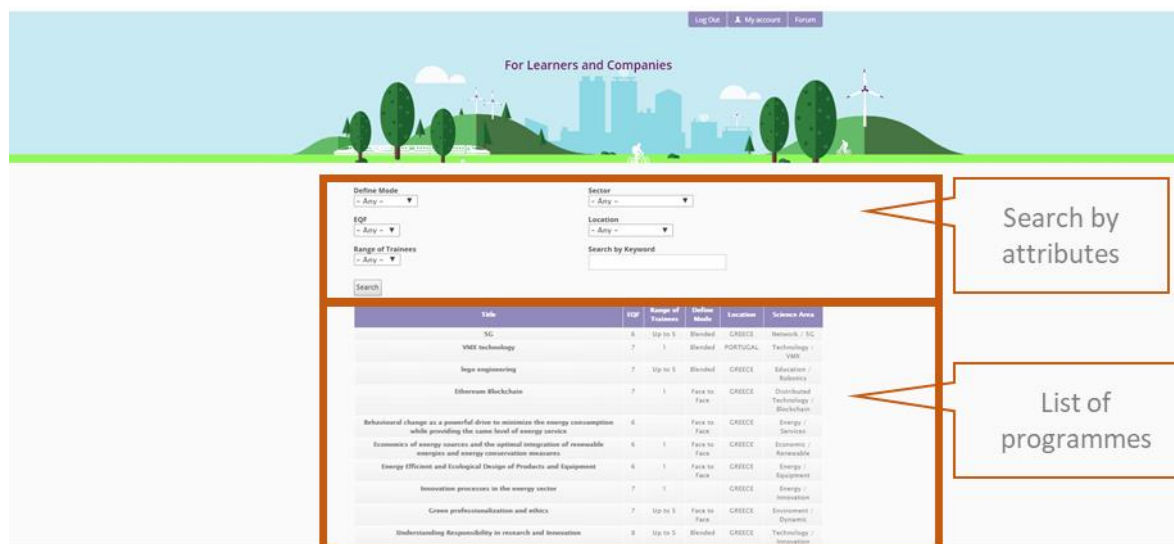


Figure 3: The educational programme search page – top

At the bottom of the page, a message encourages users that did not find the programme they were looking for to press the “place an enquiry!” button which will redirect the user to the relevant web page.

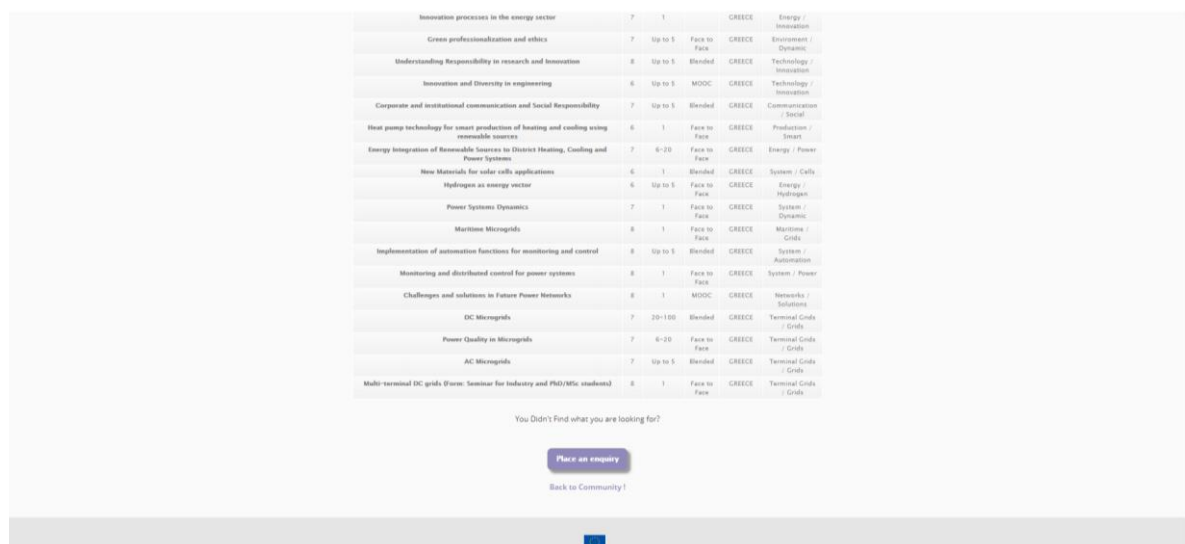


Figure 4: The educational programme search page – bottom

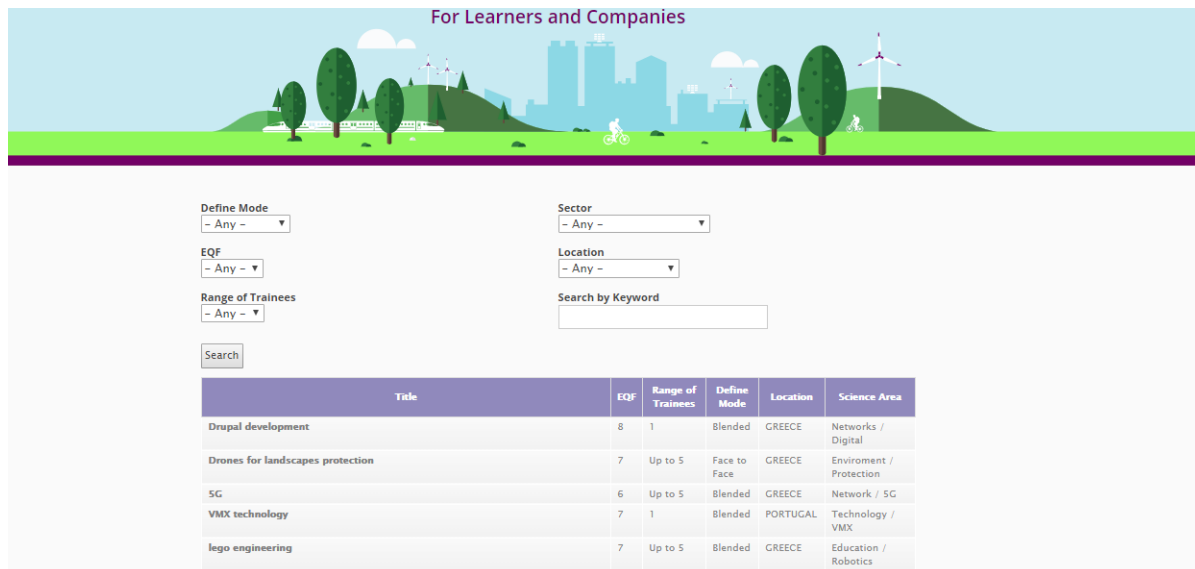
Regarding the search filters, they include:

- The learning mode (face-to-face, blended, MOOC, other)



- The sector
- EQF level (ranging from 5-8)
- The range of trainees (1, up to 5, 6-20 and 20-100)
- Location (including all countries)
- Keyword

Thus, if we select to filter by EQF level and we set it at 8, the results are presented as shown in **Error! Reference source not found.**

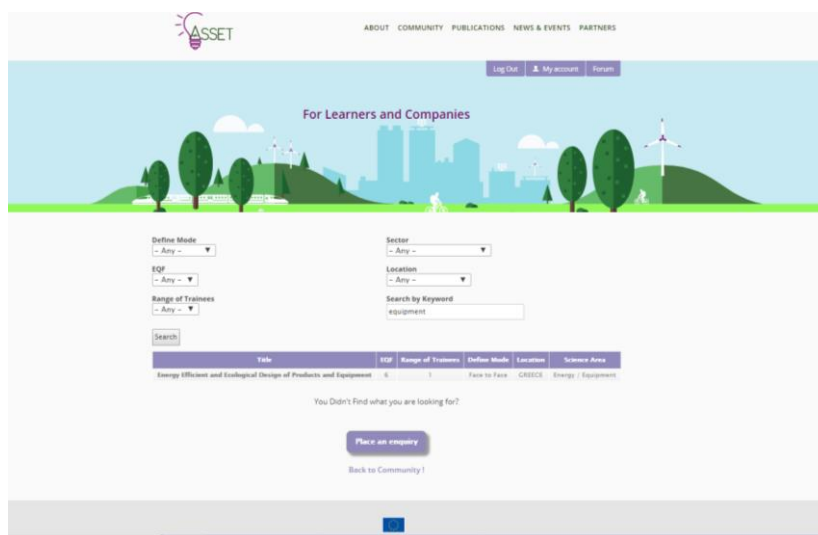


The screenshot shows the ASSET search interface with the following filters: Define Mode: - Any -, EQF: 8, Range of Trainees: - Any -, Sector: - Any -, Location: - Any -. The search results table is as follows:

Title	EQF	Range of Trainees	Define Mode	Location	Science Area
Drupal development	8	1	Blended	GREECE	Networks / Digital
Drones for landscapes protection	7	Up to 5	Face to Face	GREECE	Environment / Protection
5G	6	Up to 5	Blended	GREECE	Network / 5G
VMX technology	7	1	Blended	PORTUGAL	Technology / VMX
lego engineering	7	Up to 5	Blended	GREECE	Education / Robotics

Figure 5: Example of search result

Another example where search by keyword was used is shown in **Error! Reference source not found.** Combinations of different filter is also possible.



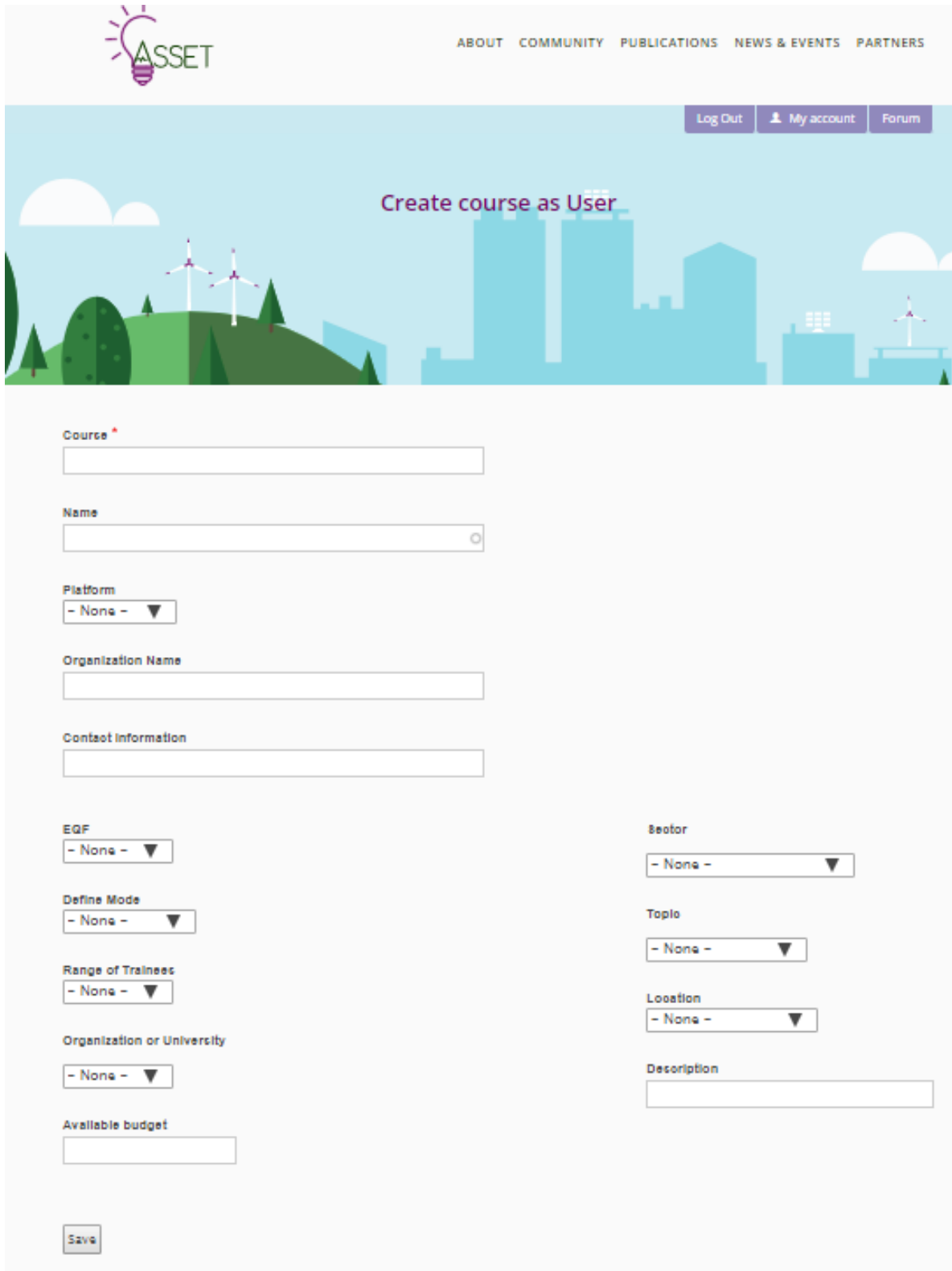
The screenshot shows the ASSET search interface with the following filters: Define Mode: - Any -, EQF: - Any -, Range of Trainees: - Any -, Sector: - Any -, Location: - Any -. The search keyword is 'equipment'. The search results table is empty, and a message states: "You Didn't Find what you are looking for?". Below the message is a "Place an enquiry" button and a "Back to Community!" link.

Figure 6: Search by keyword example

It is worth stressing that if Users select the “MOOC” learning mode then they will be redirected to the EMMA platform through which ASSET delivers its MOOCs.

### 8.1.1 Placing an enquiry

When a type A user presses the “place an enquiry” button, he is presented with the web page shown in **Error! Reference source not found.**. Although not all fields are mandatory, the user is prompted to fill in his Name and contact details and the details of the course.



The screenshot shows the ASSET website interface for creating a course. At the top, there is a navigation menu with links for ABOUT, COMMUNITY, PUBLICATIONS, NEWS & EVENTS, and PARTNERS. Below this, there are buttons for Log Out, My account, and Forum. The main heading is "Create course as User". The form contains the following fields:

- Course (text input)
- Name (text input)
- Platform (dropdown menu, currently set to "- None -")
- Organization Name (text input)
- Contact information (text input)
- EQF (dropdown menu, currently set to "- None -")
- Define Mode (dropdown menu, currently set to "- None -")
- Range of Trainees (dropdown menu, currently set to "- None -")
- Organization or University (dropdown menu, currently set to "- None -")
- Available budget (text input)
- Sector (dropdown menu, currently set to "- None -")
- Topic (dropdown menu, currently set to "- None -")
- Location (dropdown menu, currently set to "- None -")
- Description (text input)

A "Save" button is located at the bottom left of the form.

Figure 7: Page supporting users/organisations to “Place an enquiry” for an educational programme

Once the “save” button is pressed (at the bottom of the page), the user is presented with the list of enquiries that are currently open (or could alternatively be redirected to the search page).

### 8.1.2 Inserting educational programmes in the marketplace (Type B)

Once type B users enter their account they are capable of either:

- Inspecting the placed requests (which is presented in the following section) or
- Inserting new educational programmes providing all the information required so that they become searchable, i.e. the attributes that appear in the search menu along with a description and a URL to additional information.

### 8.1.3 Inspecting/replying to an enquiry (Type B)

Type B users can inspect the placed request and decide which request to select and reply.

As Type B (education Provider) navigates on the ‘education providers’ page, they can also provide enquiries with a main deference. Enquiries that are placed by an education provider user can be instantly available and visible on the table compiling available courses. Below is an example:



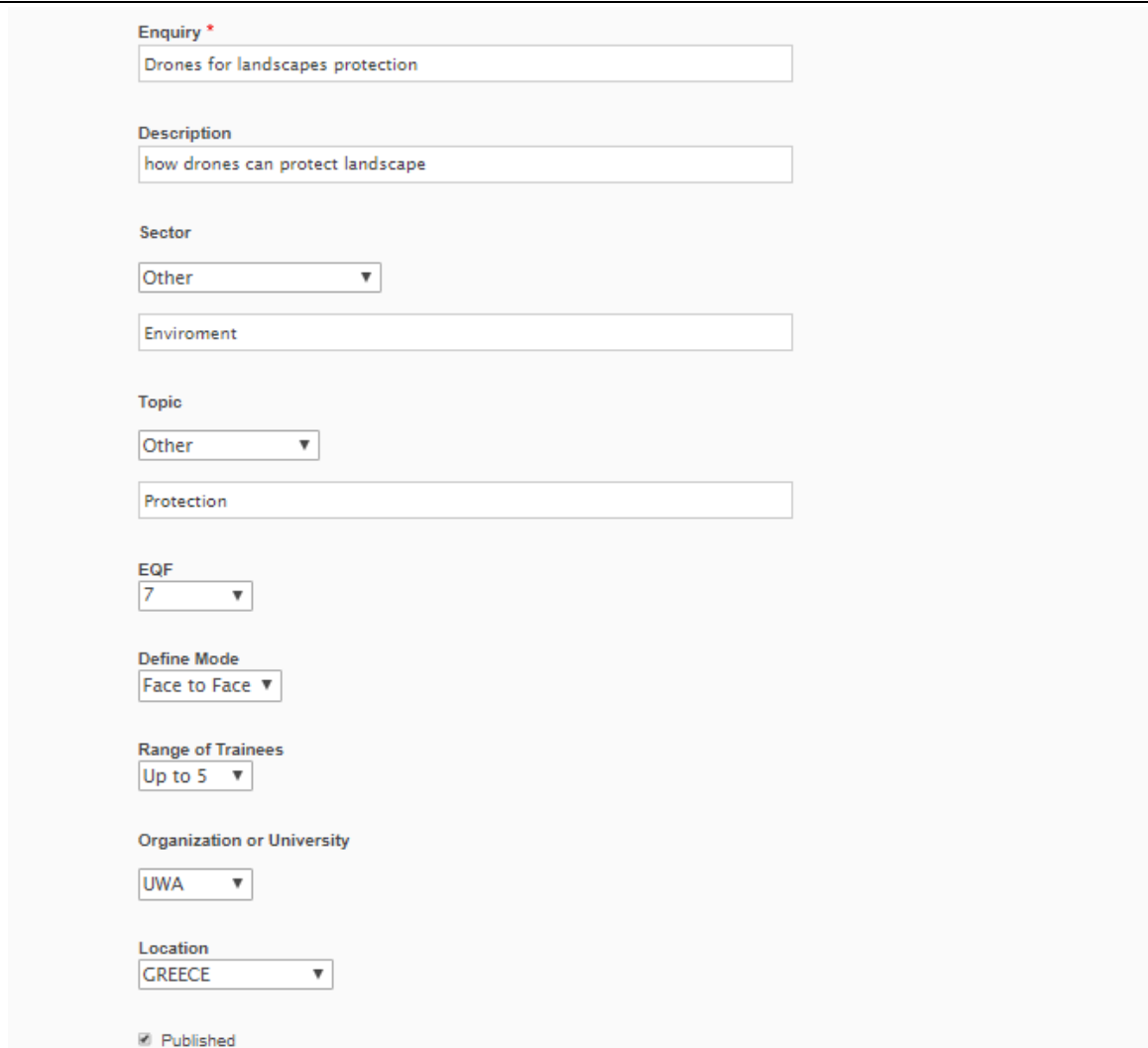
Course	EQF	Organization Name	Location	Mode	Topic	Social Media	Action
Hyperledger Fabric	7	Panos Apostolis	GREECE	Face to Face	Blockchain	in	Contact
IOTA	7	MADE	GREECE	Face to Face	Blockchain	in	Contact
LEGO robotics	7	lego	DENMARK	Face to Face	Robotics	in	Contact
Arduino Robotics	8	Arduino	ITALY	Blended	Robotics	f	Contact
Microbit	8	Microbit	UNITED KINGDOM	Face to Face	Robotics	in	Contact
Gigo Robotics Course	7	GIGO ROBOTICS	GREECE	Face to Face	Robotics	in	Contact
vx robotics	7	vx robotics	GREECE	Face to Face	Robotics	in	Contact
Hashgraph	8	maritime shipping Co	GREECE	Face to Face	Bulk	in	Contact
Water Robotics	7	water robotics professionals	GERMANY	Face to Face	Robotics	in	Contact

**Figure 8: The page presenting the enquiries list**

When users click on the ‘Create Course’ button, it redirects them to a creation page form where they can fill in the fields for the course. Fields available are the following:

- Name
- Contact Information
- Platform (Facebook or/and LinkedIn)

The role of an educator is to make the proposals and contact other users and not the opposite.



The screenshot shows a web form for creating a course or enquiry. The form is titled 'Enquiry \*' and contains several fields:

- Enquiry \***: A text input field containing 'Drones for landscapes protection'.
- Description**: A text input field containing 'how drones can protect landscape'.
- Sector**: A dropdown menu with 'Other' selected.
- Environment**: A text input field containing 'Enviroment'.
- Topic**: A dropdown menu with 'Other' selected.
- Protection**: A text input field containing 'Protection'.
- EQF**: A dropdown menu with '7' selected.
- Define Mode**: A dropdown menu with 'Face to Face' selected.
- Range of Trainees**: A dropdown menu with 'Up to 5' selected.
- Organization or University**: A dropdown menu with 'UWA' selected.
- Location**: A dropdown menu with 'GREECE' selected.
- Published**: A checkbox that is checked.

**Figure 9: Type B user creates a course**

After type B users insert course or enquiry, then the new course is automatically available under the 'AVAILABLE COURSES' section as displayed below on the following figure.

Course	EQF	Range of Trainees	Define Mode	Location	Science Area
<b>Drones for landscapes protection</b>	7	Up to 5	Face to Face	GREECE	Enviroment / Protection
<b>5G</b>	6	Up to 5	Blended	GREECE	Network / 5G
<b>VMX technology</b>	7	1	Blended	PORTUGAL	Technology / VMX
<b>lego engineering</b>	7	Up to 5	Blended	GREECE	Education / Robotics
<b>Ethereum Blockchain</b>	7	1	Face to Face	GREECE	Distributed Technology / Blockchain
<b>Behavioural change as a powerful drive to minimize the energy consumption while providing the same level of energy service</b>	6		Face to Face	GREECE	Energy / Services
<b>Economics of energy sources and the optimal integration of renewable energies and energy conservation measures</b>	6	1	Face to Face	GREECE	Economic / Renewable
<b>Energy Efficient and Ecological Design of Products and Equipment</b>	6	1	Face to Face	GREECE	Energy / Equipment
<b>Innovation processes in the energy sector</b>	7	1		GREECE	Energy / Innovation
<b>Green professionalization and ethics</b>	7	Up to 5	Face to Face	GREECE	Enviroment / Dynamic
<b>Understanding Responsibility in research and Innovation</b>	8	Up to 5	Blended	GREECE	Technology / Innovation
<b>Innovation and Diversity in engineering</b>	6	Up to 5	MOOC	GREECE	Technology / Innovation

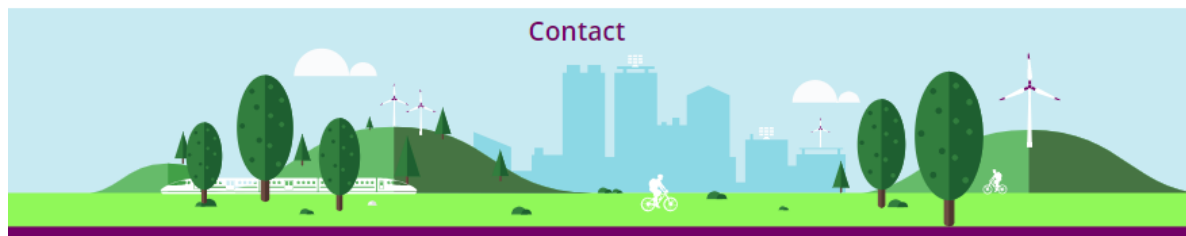
Figure 10: Type B user new course

User B, can easily contact the specific users and make a proposal for the enquiry User A placed by clicking on the ‘contact’ button displayed on the request course row. To make it fully understandable, please find an example below:

CREATE COURSE
AVAILABLE COURSES

Course	EQF	Organization Name	Location	Mode	Topic	Social Media	Action
Hyperledger Fabric	7	Panos Apostolis	GREECE	Face to Face	Blockchain	in	Contact
IOTA	7	MADE	GREECE	Face to Face	Blockchain	in	Contact
LEGO robotics	7	lego	DENMARK	Face to Face	Robotics	in	Contact
Arduino Robotics	8	Arduino	ITALY	Blended	Robotics	f	Contact
Microbit	8	Microbit	UNITED KINGDOM	Face to Face	Robotics	in	Contact
Gigo Robotics Course	7	GIGO ROBOTICS	GREECE	Face to Face	Robotics	in	Contact
vx robotics	7	vx robotics	GREECE	Face to Face	Robotics	in	Contact
Hashgraph	8	maritime shipping Co	GREECE	Face to Face	Bulk	in	Contact
Water Robotics	7	water robotics professionals	GERMANY	Face to Face	Robotics	in	Contact
adsfadsf							Contact

Figure 11: Type B user making contact with a user made a request

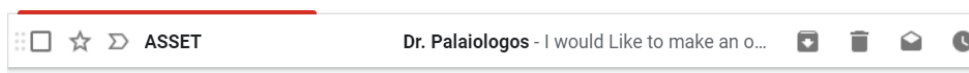


Your Name \*

Your Email \*

Subject \*

Message \*



**Figure 12: Type B sending an email /Email showing on main section of personal User A email platform**

User B can easily make contact user A via the LinkedIn Platform by clicking on the specific icon which redirects them to the LinkedIn Platform of User A like the example below.


Course	EQF	Organization Name	Location	Mode	Topic	Social Media	Action
Hyperledger Fabric	7	Panos Apostolis	GREECE	Face to Face	Blockchain	in	Contact
IOTA	7	MADE	GREECE	Face to Face	Blockchain	in	Contact
LEGO robotics	7	lego	DENMARK	Face to Face	Robotics	in	Contact
Arduino Robotics	8	Arduino	ITALY	Blended	Robotics	f	Contact
Microbit	8	Microbit	UNITED KINGDOM	Face to Face	Robotics	in	Contact
Gigo Robotics Course	7	GIGO ROBOTICS	GREECE	Face to Face	Robotics	in	Contact
vx robotics	7	vx robotics	GREECE	Face to Face	Robotics	in	Contact

**Figure 13: Type B user connects with type A social media platform**

CREATE COURSE
AVAILABLE COURSES

Course	EQF	Organization Name	Location	Mode	Topic	Social Media	Action
IOTA	7	MADE	GREECE	Face to Face	Blockchain	in	Contact
LEGO robotics	7	lego	DENMARK	Face to Face	Robotics	in	Contact
Arduino Robotics	8	Arduino	ITALY	Blended	Robotics	f	Contact
Microbit	8	Microbit	UNITED KINGDOM	Face to Face	Robotics	in	Contact
Gigo Robotics Course	7	GIGO ROBOTICS	GREECE	Face to Face	Robotics	in	Contact
vx robotics	7	vx robotics	GREECE	Face to Face	Robotics	in	Contact
Hashgraph	8	maritime shipping Co	GREECE	Face to Face	Bulk	in	Contact
Water Robotics	7	water robotics professionals	GERMANY	Face to Face	Robotics	in	Contact
Drupal development	8	drupal	GREECE	Blended	Digital	in	Contact

Figure 14: Type B clicking on the course to edit it



**Define Mode**  
- Any - ▾

**EQF**  
- Any - ▾

**Range of Trainees**  
- Any - ▾

**Sector**  
- Any - ▾

**Location**  
- Any - ▾

**Search by Keyword**

Title	EQF	Range of Trainees	Define Mode	Location	Science Area
Drupal development	8	1	Blended	GREECE	Networks / Digital

Figure 15: Type B made course available and display now on 'Learners and Companies' page