„Developing cross-border networks of ATI technology centres in the field of low carbon industrial processes: challenges and opportunities”

Online workshop

11th of February 2021(9:00-12:30), Zoom meeting

Organised on behalf of:

European Commission DG GROW

Executive Agency for Small and Medium sized Enterprises

by Fraunhofer ISI and IDEA Consult

The workshop “Developing cross-border networks of ATI technology centres (TCs) in the field of low carbon industrial processes: challenges and opportunities” was one of the workshops organised within the Advanced Technologies for Industry (ATI) project (https://ati.ec.europa.eu) commissioned by the Executive agency for Small and Medium-Sized Enterprises and the European Commission DG GROW.

The objective of this workshop was to gather insights for developing a series of recommendations on how networks of technology centres in the field of low carbon industrial processes can be more effective in addressing and fulfilling the needs of SMEs and industry, by among others including actors over the entire value chain.

ATI Technology Centres are defined as public or private organisations carrying out applied research and close-to-market innovation (Technology Readiness Levels TRL 3 to 8, including at least one TRL >5) in Advanced Technologies (AT). The concept of networks of ATI technology centres refer to networks providing technology facilities, services and expertise to SMEs in the field of AT. These networks act as a single-entry point ("one-stop shop") for SMEs willing to get access to the technology services and facilities available from the technology centres in the network.

In order to structure the discussions and recommendations, three models of collaboration between TCs were presented (Joint-Service, Awareness-based and Coaching-based

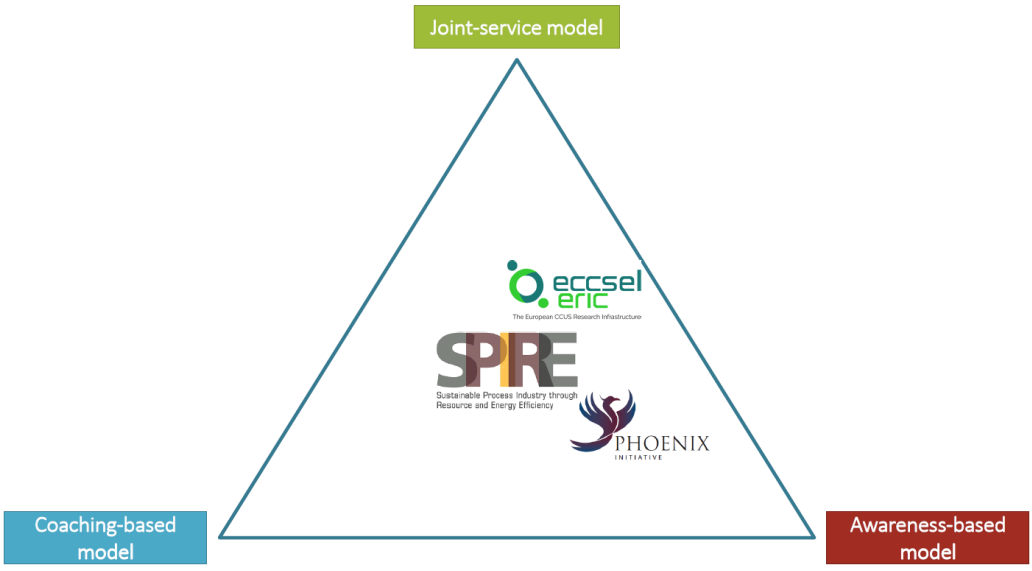
Model respectively). In the workshop, participants discussed the relevance of these models, as well as their advantages and limitations with respect to facilitating the access of SMEs to these technologies.

Agenda:

09:00	Welcome and introduction by Evangelos Meles (DG GROW, European Commission)
09:05	Introduction to the concept of value chain-based networks. Recommendations from the "Study on Access of SMEs to KETs technological centres", Els van de Velde (IDEA Consult)
09:30	Presentation of various cross-border networks of ATI technology centres • Sverre Quale, Norwegian University of Science and Technology for ECCSEL • Sophie Wilmet, CEFIC for PHOENIX • Evelina Paunksnyte, A.SPIRE
10:45	Discussion, moderated by Sven Wydra (Fraunhofer ISI)
12:25	Conclusion and next steps

Key points from the presentations:

Figure 1: Positioning of the presented initiatives across the three models of collaboration



The models of collaboration for TC-networks were displayed in a pyramidal shape. The three initiatives positioned themselves mainly between the joint-service and awareness-based model, but emphasised that they have very **hybrid approaches and integrate different functions** in their networks. The positioning of the initiatives was discussed with the speakers.

A.SPIRE is the Association for the contractual public-private partnership for *"Sustainable Process Industry through Resource and Energy Efficiency"* of the European Process industries (10 Sectors) with diverse members. Projects under the umbrella of SPIRE are co-funded under H2020 and address topics such as energy and resource efficiency, integrated downstream processes as well as recycling. It has established a broad network with high variety, inclusive of different stakeholders and welcoming newcomers. As a network, it would position itself as a **mix of all models integrating different functions.**

ECCSEL is a network of European Research Infrastructures**,** which covers the whole TRL-scale in the field of carbon capture and storage. **The network would position itself** today basically as a joint-service model (because of the provision of research infrastructure services across the EU), but also as a kind of awareness-based model (through communication on their activities in internet, media, conferences it experiences increased interest). ECCSEL would like to come closer to the coaching-based model, because they have a lot of skills and experience to help SMEs and industry. In the view of the COVID-19-crisis, virtual access and e-infrastructure are promoted now, making it possible to perform distant research and sharing data (ECCSEL Virtual Lab)**.**

- There was a question to ECCSEL from the audience regarding the reasons for becoming an ERIC (European Research Infrastructure Consortium) as compared to the association model chosen by SPIRE. It was answered by Sverre Quale, that by being ERIC you become a legal entity and the Member States guarantee permanent funding. ERIC initiatives are organised in the ERIC-forum, which is a joint platform for sharing experience on administrative and IP-issues.

The **PHOENIX Initiative** is a collaborative effort supported by France, Germany, the Netherlands and the European Chemical Industry Council (Cefic). It acts as an umbrella initiative for activities with respect to CO2-valorisation, improving synergies and coordination in terms of R&D - covering whole innovation chains (investments, support prioritisation of such types of innovation in companies, support framework conditions). Main objective is to bridge the gap of Key Enabling Technologies (KETs) from the development and deployment in the EU in a broad range of applications and technologies. Part of the work was opening the dialogue with policy makers or funding

agencies. PHOENIX is open to all relevant stakeholders. The positioning of the initiative between the three models was difficult, but it seemed to fit between the joint service model and the awareness based model (facilitating collaboration between RTOs and companies, but also between small and big companies).

Concluding the presentation of the different initiatives and networks, it became clear that all collaboration models seemed to be of high relevance.

DISCUSSION:

1. Openness:

The approaches to openness are very different for each initiative, because they focus on different activities.

For ERICs such as ECCSEL there are certain formal and financial requirements and this means it is not open for everybody, but collaboration with others would be possible on different levels. In the case of ECCSEL, there are **some entry barriers**, which is reflected in the rather low involvement of industry and SMEs. In most research projects, the process industry is indirectly involved (not many applications directly from companies to use the research facility). However, for the future, the objective would be to open up the access in order to see more SMEs/companies benefitting from the facilities. E.g. ECCSEL participates in H2020 projects, which have explicit modules for grants for collaboration between the research facilities and industry.

In the case of SPIRE, it is an association, which is based on **membership fees** (formal requirement), but in principle the network is open to every actor that can afford this. With some stakeholders there is no formal collaboration, but a mutual understanding for doing other partnerships and activities together. But, it can be hindering impact when there is no formal agreement, which is often the case when companies or organisations do not have the resources to participate (financially but also human resources).

The preliminary mapping of ATI technology centres shows that Western Europe is much more covered with Technology Centres, though in reality there are **a lot of relevant actors** in **Eastern EU countries** too, but they are **not covered** in such mapping. They often do not have the resources to follow the formal application procedure for it. This poses the risk that these kinds of initiatives and technology centres are not visible and they are excluded from future networks of ATI technology centres.

In the case of **PHOENIX**, it was stressed that there is involvement in both types of networks (open and closed), but that in principle you need openness to make sure everyone can contribute. The question behind should be how resources and capacities

can be best used to make it effective and to have an impact. Sometimes, special support to contribute to the network might be needed. Such a network should be open not only for the typical R&D-actors (technology centres, research infrastructures, projects) but also to **actors from the value chain ecosystem** around the respective thematic field.

Overall, it has to be considered that most initiatives have different ways of integrating stakeholders, besides formal membership, many actors, in particular SMEs, are active in ATI technology centres via projects with the members and/or inside the initiative.

2. Internal Functioning of networks:

It became clear that the specific features of this “value chain” on low CO2-industrial processes makes it very complex to discuss the potentials of future networks of ATI technology centres, as one has to take into account the diversity of cases and the reality of different types of collaborations between stakeholders.

Cross-border networks of ATI technology centres should be developed in a way that technological infrastructures would open up for SMEs, that means setting up a network of networks to offer a kind of „**one-stop-shop“** for SMEs. In a network of RTOs and SMEs, the **access for SMEs** should be as easy as possible, but the efforts for RTOs and TCs should not be too demanding (it should be manageable for the „service provider“ that steers this network).

In the case of ECCSEL, it might be an option to include technology infrastructures in the network. In the carbon capture and use (CCU) field activities in a high TRL-level are expected and this is why ECCSEL is more and more targeting SMEs for supporting with funding and implementing the technology.

SPIRE also works with **other networks and clusters in the regions** because they can help them to reach out to smaller companies and industries. Clusters connect them to the local industries and the research centres, as they have different understanding of the landscape on the ground. These regional actors (innovation agencies, clusters) could also make the link to the right ATI centres for SMEs

It was stressed from the audience that **SMEs have varying needs** with respect to support. Whereas established SMEs (which may be non-technical in nature) typically need help to access new technologies or knowledge, start-ups may have strong technology knowledge, but need help in commercialisation and gaining access to new markets. On the other side high-tech SMEs may manufacture a range of products already with strong R&D knowledge in their area but would need help to demonstrate new products so they can access new markets.

Further it was noted from the audience, that these initiatives could be linked with KICs (Knowledge and Innovation Communities) supported by EIT.

3. Service Portfolio

According to many participants, a mapping of what kind of services are needed in terms of TRL would be needed first. As the field of technologies is **extremely broad** in the case of low CO2-industrial processes, the field would have to be structured first also to help SMEs to get through the type of technology centre they could support them best.

In such a network, SMEs offering technological solutions and SMEs looking for solutions should be connected with each other (matchmaking of technology providers and companies wanting to decarbonise).

As an example, for CCUs the interest from industry comes from **larger industrial companies**, rather than SMEs, and in the same time they are major suppliers of these technologies. The needs from the smaller businesses are not there - but maybe also because of lacking resources to decarbonise. For capturing and storing CO2 there are high investments needed and high risks. On the lower TRLs there are many collaborations between different actors, but when they take it further to the higher TRLs (patenting, implementation etc.) there is fewer collaboration.

SPIRE sees a high complexity in the establishment of such networks in a value chain based approach, but also highlights the **need to look for a model that makes collaboration more efficient** (streamline the knowledge and reach out to certain actors together).

For most SMEs the **awareness-based model of collaboration** would be best suited, this is the **bottom-layer**. Also for the different technology centres and initiatives this would be an important first step, they need to be in a kind of structure where they can learn what exists around them. Recommendation from the audience was also to start with the awareness-based model and then to **structure different actors in different working groups** by industry areas, which could initiate R&D projects (for example HEU, Eureka, Eurostars). Then in a next phase, it would be possible to evolve to the joint service model of collaboration.

A **better coordination of project portfolios** on an overarching level is missing, as sometimes projects are just duplicating each other between different funding bodies.

4. Pan European Scope:

A **mapping** around where more networking would be needed in the landscape of low CO_2 industry would be important to get an **overview of the whole landscape** (and also with regards to the funding). What are other players and actors nationally and regionally that can provide services? How can the innovation agencies be involved? How this relates to other actors that are out there in the industrial landscape? Analysing these questions could show the gap and what is not covered by already existing networks and initiatives could be the purpose of such a network. One potential way of structuring such mapping would be to use the TRL phases, which is a key difference between various initiatives.

As it was mentioned before, **local satellites** such as regional innovation agencies and clusters were seen as important elements of a Pan-European network.

There will be an ERA action on common industrial technology roadmaps (from DG R&I) which is supposed to tackle the perceived lack of the portfolio approach and should analyse correlations between the national R&I-agendas and the activities of Horizon Europe. This will be elaborated on a workshop basis, not a formal group of experts. Until now there are two focus sectors selected, which are low carbon industries and circular industries.