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D5.2 - First Report on EPOS-Private Sector interaction

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Executive Summary

This document presents the initial strategy for EPOS Private Sector interaction and the actions that have been undertaken during the first 12 months of project implementation towards the construction of this report. As a result, stakeholders from private sector that might be interested in pilots of EPOS SP have been identified; the TCS AH - Private Sector (industry) Partnership Concept and its implementation was presented to TCS AH Innovation Advisory Committee, which was then asked for its recommendations; the team responsible for preparing the strategy participated in the development of the TCS AH Section for Project and Partnership action plan in terms of Building Strategic Partnerships and Attract New Partners.

1. Introduction

The COVID19 pandemic has fundamentally changed the original action plan of Task 5.2. On the one hand, it has made direct contacts with potential and current private sector partners impossible. Thus the plans to develop a strategy for EPOS Private Sector interaction with inventory of the actual potential of EPOS TCS for the users, suppliers, and partners from industry and SMEs, based on the wide feedback of these partners could not be implemented as previously assumed. For obvious reasons, the research with the intended scope could not be replaced by remote/ online contacts.

At the same time, the pandemic weakened the communication possibilities within EPOS in the delicate matter of TCS innovation potential and the preparation of an innovative offer for stakeholders.

In this situation, the action plan was altered. EPOS Thematic Core Service Anthropogenic Hazard (TCS AH) is, in the nature of things, on the forefront of cooperation with the private sector. The need for energy and minerals requires a variety of complex industrial processes to be performed under increasingly difficult environmental conditions. Anthropogenic Hazards, particularly induced seismicity related to the exploration and exploitation of georesources is a growing area in the focus and interest in science, industry, public administration, NGO's and the public. Thematic Core Service Anthropogenic Hazards aims to integrate distributed research infrastructures (RI) to facilitate and stimulate research in the area of anthropogenic hazards (AH), especially those associated with the exploration and exploitation of geo resources. TCS AH relies on IS-EPOS platform, which is not just a portal for data provision. Instead, it is an innovative e-research environment, science gateway, for researchers. It provides an extended and flexible virtual laboratory workspace for data processing, analysis and visualization. Being dependent on the private sector data supplier, TCS AH already has contacts with the private sector, which are being maintained and developed by the community. TCS AH's interactions with industry are the most advanced of all EPOS TCSs. At the same time, the entire WP5 package as well as Tasks 5.2 and 5.3 are coordinated by members of the TCS AH consortium. This situation facilitates access to information on the activities of TCS AH and the impact on these activities. In this situation as part of the revised work plan on a strategy for EPOS Private Sector interaction, TCS AH interactions with industry are being investigated as a pilot of cooperation between the EPOS TCS-s and the private sector. As part of this pilot, the following actions were carried out:

- an inventory of industrial stakeholders to which promotional campaigns should be directed to (as a result of this action a database of companies was developed)
- the TCS AH Innovation Advisory Committee was asked to share its opinion on TCS AH - Private Sector (industry) Partnership Concept and its implementation;

- coordinating and participating in the development of the TCS AH Section for Project and Partnership action plan in terms of **Building Strategic Partnerships** and **Attract New Partners**.

In addition to the pilot studies, preparatory actions were also undertaken on a larger scale:

- A questionnaire entitled **A leaflet describing the service(s) that TCS could offer to the private sector** was developed to map the inventory of TCSs' assets and to gain knowledge what areas covered by TCSs would be of interest for Private Sector.
- The WP5 Leader contacted the ENRIITC Project Leader (<https://enriitc.eu/>) in order to recognize possible ways of collaboration that could be beneficial for both: EPOS SP and ENRIITC. The details on the ENRIITC Project and the benefits for building the strategy of EPOS – Private Sector interactions, which could stem from the collaboration with ENRIITC are listed in Section 6.

2. Inventory of partners and potential industrial partners of TCS AH

The inventory of partners and potential industrial partners has been prepared in July 2020 by the EPOS SP WP5 team. The database consists of 21 companies from 12 countries: France, Czech Republic, Poland, Sweden, Turkey, Italy, Switzerland, United Kingdom, Germany, The Netherlands, Iceland, Serbia. The inventory of companies represents the landscape of various entities operating in the following areas: electricity, energy, gas energy, gas storage, extraction of ores, production of copper and other non-ferrous metals, hard coal market, iron ore products and services, mining, sustainable development, geothermal engineering, engineering consultancy, software, seismology.

3. Feedback from Innovation Advisory Committee of EPOS TCS AH

In 2020, TCS AH formed an Innovation Advisory Committee (IAC), consisting of 9 members and dominated by industry representatives. The members of IAC are independent experts as IAC is neither in the TCS AH structures nor in EPOS as a whole. The Innovation Advisory Committee has a consulting role in the decision-making process of the TCS AH Consortium.

During 2020, two IAC meetings were held with the participation of representatives of the group carrying out EPOS SP WP5 Task 5.2 "EPOS interaction with EU Private Sector". During the first meeting IAC members were introduced with organizational structure, partners, TCS AH services and resources. During the second meeting, IAC was asked to reflect on the concept of cooperation with the Private Sector. IAC was made aware of the so-far identified classes of EPOS stakeholders from the Private Sector, namely:

- User: Uses the integrated infrastructures with a limited or even without any interaction with EPOS,
- Supplier: Provides infrastructure to EPOS without developing any further interactions with EPOS,
- Partner: Develops partnership links with EPOS. Can be a user, a supplier or both;

and of the TCS-AH - Private Sector (industry) partnership concepts:

- Partner makes a part of its infrastructures (instruments, monitoring networks, data including relevant operational) available for research through TCS AH, and TCS AH implements the

mechanisms, which prevent violation of rights of the Partner (examples: Cotton Valley episode from Gas Technology Institute, US and NORSAR, Norway; Cooper Basin Episode from ReNu Energy Limited, Australia and Q-con GmbH, Germany).

- TCS AH carries out actions to encourage researchers to undertake around wider problems indicated by the Partner.
- Partners have priority in the implementation of services developed by the research community grouped around TCS AH.
- Partners provide advice on the potential usefulness and practical applicability of the solutions meant to be used in practice.
- TCS AH helps to create mixed scientific-industrial teams for joint projects (example: EPOS PL national infrastructural project with PMG participation).
- Partner has the opportunity of using the IS-EPOS platform for its projects, including storing data under embargo conditions (example: Bogdanka episode of Lubelski Węgiel "Bogdanka" SA, Poland).

IAC was also asked questions to reflect on:

- How to increase the visibility of EPOS TCS AH services to industry and SMEs?
- What should be changed in the TCS AH services to make them more attractive for users, suppliers and partners from industry and SMEs?
- Corrections and developments of the TCS AH - Private Sector Partnership Concept.
- How to find companies potentially interested in developing contacts with TCS AH? How to get in touch with these companies?
- Towards the development of strategy of the EPOS – Private Sector collaboration. The same questions and problems as above concerning the whole EPOS.
- At which level should be organized the legal and financial framework under assumption that the Private Sector becomes a component of this framework? At EPOS-ERIC, at institutions participating in EPOS, any other?

In response, IAC prepared the 2020 report in which, among others, presented its conclusions and recommendations in regards to vision to support the development of science – industry synergy and partnerships on an example of TCS AH. IAC introduced the idea to improve the TCS AH existing resources and technical infrastructures. IAC also stated in its report that the TCS AH IS-EPOS Platform (tcs.ah-epos.eu/) and data repository should include some digital educational content and e-collaboration tools.

IAC gave also some advice and reflected on the posed questions. EPOS TCS AH integrates the so-called episodes, which are comprehensive data descriptions of geophysical processes, induced or triggered by human technological activity, which under certain circumstances can become hazardous for people, infrastructure and the environment. To increase the visibility of EPOS TCS AH services to industry, IAC suggested making the episode repository a core data for the research into developing and testing hazard assessment methodologies. IAC also proposed to prepare demos and organize webinars aimed at promoting integrated software applications and related services. To make TCS AH e-services more attractive for users, the Committee recommended considering episode as a part of a wider database; creating a feedback and results depository to increase knowledge and understanding; providing hazard related modeling tools that industry could use for “environmental impact assessment”. Regarding the Private Sector Concept, the IAC recommended partnership be driven by the benefits that industry and

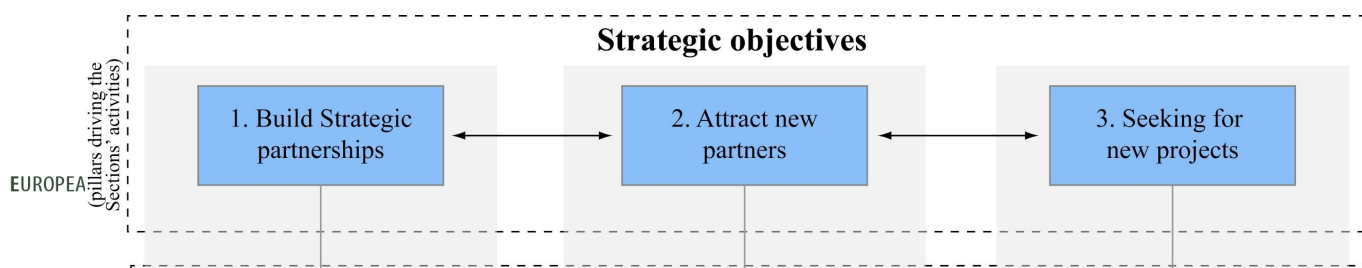
regulators could get to improve the regulatory framework; therefore, more risk and hazard management services should be implemented on the Platform. To find companies potentially interested in developing contacts with TCS AH, IAC proposed increasing the visibility of services aimed at helping companies to predict and mitigate anthropogenic hazards; contact regulatory bodies to get full access to public data sets; promote good practices and help the Private Sector to value monitoring and mitigation strategies.

4. TCS AH Section for Project and Partnership plan of building strategic partnerships and attracting new partners

TCS AH Section for Project and Partnership aims at identifying key areas for future collaboration; identifying and targeting potential partners, including international academic and industry stakeholders; and coordinates the legal, financial, and technical aspects of new partnerships and pilot projects. In its work plan for 2021-2023, section set some general aims:

1. Defining possible groups of partners (e.g. – research groups, universities (education), different types of industries, research/experimental projects, big organizations) and different types of collaboration
2. Preparing strategies to collaborate with different possible partners
3. Preparing promotional strategy and materials together with the Promotion section (for different types of partners and general materials);
4. Defining the legal and financial aspects of collaboration with new partners and projects
5. Defining (adjusting) the rules of collaboration depending on the partners (academic, commercial – lawyers, IT, equipment companies; educational) and the interaction with other sections
6. Proposing a procedure to manage data and services and work on a pilot project (technical requirements for new data and software to be prepared by the Section for episodes and software/services)
7. Proposing a procedure to manage data and services and work on a pilot project with industrial partner (technical requirements for new data and software to be prepared by the Section for episodes and software/services)
8. Considering the possible participation of the consortium in multinational projects (make a list of possible projects)

The Section defined also three main pillars: 1. Building Strategic Partnerships, 2. Attracting New Partners, 3. Seeking New Projects, and tasks to be performed accordingly to the specific pillars.



5. EPOS-wide survey of the services that could be offered to the Private Sector

The WP5.2 task team developed a questionnaire entitled **A leaflet describing the service(s) that TCS could offer to the Private Sector**. The leaflet is directed to TCSs leaders to map the inventory of TCSs assets and to gain knowledge what areas covered by EPOS TCSs would be of interest for the Private Sector.

It consists of three parts: 1. general information concerning leader and contact information; 2. TCS information – discipline, keywords, additional information; one characteristic picture/ logo; 3. questions on the Private Sector concerning possible target Private Sector recipients/ stakeholder groups, possibly interested companies, potential ways of collaboration with the Private Sector, benefits to the industry. The questionnaire is planned to launch in early 2021.

In further steps and as a supplementary activity to collecting the filled-in questionnaires is to conduct online interviews with TCS leaders. The aim of such interviews is to collect more detailed information when needed.

A preliminary questionnaire directed to the leaders of teams building pilots in the task WP5.1- Leaflet for a Service Offer description - was prepared, and feedback was collected by October 2020. It also consisted of three parts and aimed at obtaining information on industrial partners that could be interested in the WP5 pilots and EPOS as a whole.

6. Contact with ENRIITC Project Representatives

ENRIITC is a project which aims to build a permanent pan-European network of Industrial Liaison and Contact Officers and enable industry to become a full partner of research infrastructures whether it is a user, a supplier, or a co-creator. It supports the establishment of strategic, cross-border partnerships between

industry and research infrastructures. The objectives of ENRIITC are of EPOS SP WP5 interest. Since WP5 works on preparing the strategy for EPOS Private Sector interaction, it plans to increase EPOS visibility and attractiveness for industry and SMEs and work on developing legal, organizational, and financial frameworks for enhancing the cooperation with Private Sector. Cooperation with ENRIITC Project may help achieve these objectives and establish new links with Private Sector. Therefore, in December 2020, WP5 Leader contacted ENRIITC Project team to recognize possible ways of collaboration. The first joint online meeting of WP5 Leader, Task Leaders, and ENRIITC representatives is scheduled for February 2021.

7. Conclusion: Initial strategy for EPOS-Private Sector interaction

Based on the conducted research, a preliminary EPOS-Private Sector interaction strategy can be outlined. A necessary first step is to recognize the attractiveness of TCS-s and the entire EPOS to the private sector. In such a study, the attention should focus first of all on the potential offers linked to scientific domains.

This first step should set the scene for the second step, which is creating a database of contacts to companies that can cooperate with TCSs or the entire EPOS in one or more than one of three classes - as User, Supplier or Partner.

In order to attract stakeholders from the Private Sector, a pilot offer should be prepared in an attractive form. The implementation of this part of the strategy currently concerns only three TCSs: TCS Seismology, TCS Volcano Observations, and TCS Anthropogenic Hazards, which are developing pilots within Task 5.1: Pilot areas for EPOS collaboration with Private Sector.

With a pilot offer as well as with a full one, you need to reach the stakeholders gathered in the company database. It is not an easy task, and the possibilities of EPOS and TCSs direct actions are inherently limited in this respect. Based on the model cooperation of TCS AH with its Innovation Advisory Committee, we propose that other TCSs create similar bodies and present in front of these bodies their offer of cooperation with the private sector. Such a body has several roles. It helps to clarify the TCS offer in terms of its attractiveness for the private sector. The TCS's strategy of developing contacts with the private sector is critically evaluated, and modifications are recommended. It helps create a database of potential private sector stakeholders. In some cases, the members of these bodies can help engage with stakeholders.

We think that an analog of IAC of TCS AH should also be created at the entire EPOS level. Such a body could support strategic activities at this level, such as, for example, activities for the development of the legal basis for EPOS cooperation with the private sector. However, the mainstream of EPOS interactions with the private sector will be domain-specific. It will come from individual TCSs, possibly from ad hoc created TCS groups.

There are no legal solutions at the European Union level for the mutual use of research infrastructures of academia and the private sector. There are also no specific regulations within EPOS. We postulate to take actions from the level of the entire EPOS to develop such solutions and regulations. The works under the task WP5.3: Development of the setting for EPOS-Private Sector cooperation will support.

Networking with other academic groups that develop interactions with the private sector increases the possibilities for building these interactions. On this background, cooperation with the ENRIITC Project seems

to be an excellent opportunity to establish strategic links between research infrastructures and industry. Cooperation with ENRIITC will be advantageous in mapping collaboration potential between research infrastructures and industry. It will also help develop and refining strategies and best practices to foster these collaborations and improve the visibility of EPOS.