

# Open Model

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**WP7-D7.3-COOPERATION AND NETWORKING ACTIVITIES**

# D7.3- COOPERATION AND NETWORKING ACTIVITIES

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## ABSTRACT

The current deliverable (D7.3) on cooperation and networking activities comprises the work performed from M6 (01.08.2021) to M24 (31.01.2023) in the frame of the Task 7.2: Cooperating/Networking- the IMDE. This task is led by FRAUNHOFER in partnership with SISW, GCL and CNR and addresses further the current status of cooperation and networking, and most importantly, routes for achieving a collaboration towards the common goal of establishing a complete ecosystem for materials development in Europe.

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**DISSEMINATION LEVEL**

PU	Public	<b>X</b>
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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# D7.3- COOPERATION AND NETWORKING ACTIVITIES

## 1 INTRODUCTION

The main goal of OpenModel is to facilitate the creation of an **integrated materials development environment (IMDE)** for Europe. Task 7.2 addresses further challenges for cooperation, networking and most importantly, achieving a collaboration towards the common goal of establishing a de facto complete ecosystem for materials development in Europe- the IMDE. This is achieved in this task by the following actions:

- interact strongly with the **H2020 CSA Project OntoCommons** (NMBP-39-2020-CSA - *standardised data documentation*);
- foster cooperation with businesses and possible OpenModel users to obtain feedback regarding business and industry needs;
- coordinate with characterisation networks to facilitate setting up experimental workflows;
- co-organise open workshops with the goal to coordinate interface/API/ontology developments;
- participation in partner events and setting potential joint exhibitions and workshops;
- Support in selection of members and establishing the **EAB** in WP8 (connection to VIMMP, CompoSelector, OntoTrans, OntoCommons and HPCs).

This Deliverable *D7.3- Cooperation and networking activities* addresses the current status of cooperation and networking, and most importantly, routes for achieving a collaboration towards the common goal of establishing a complete ecosystem for materials development in Europe.

The second section of this document describes the networking activities through collaboration initiatives. A representation of the EMMC umbrella and relevant projects should give a general overview of the activities taking place. In addition, the External Advisory Board (EAB) will be introduced, which is a crucial tool for the cooperation activities of WP7 that ensures strong interaction with all initiatives that are key to building an integrated materials development environment.

Further, in the third section, the supportive actions for collaboration and networking will be described, with OpenModel aiming to actively pursue networking as a means of effectively disseminating and communicating the project both within and outside the consortium.

In the fourth section, dealing with the collaboration projects, further initiatives and ongoing activities, the cooperation and networking with the OIP sister projects (MUSICODE and VIPCOAT) will be explained. Furthermore, the first EAB meeting within the OpenModel project will be shown as it is an important part of the cooperation activities. In addition, the cooperation in frame of the dissemination actions performed by the partners will be pointed out.

## 2 NETWORKING ACTIVITIES THROUGH COLLABORATION INITIATIVES

### 2.1 GENERAL OVERVIEW

The D7.3 enables OpenModel to establish direct cooperation with the sister projects, approved under the [DT-NMBP-11-2020 - Open Innovation Platform for Materials Modelling \(RIA\) – OPENMODEL, MUSICODE, VIPCOAT](#), with the aim of promoting actions to cooperate and exchange knowledge.

For achieving scalability through collaboration, the OpenModel project has been planning active participation in European Commission (EC) supported initiatives and collaboration instruments throughout the project and beyond. This includes:

- The partnership with H2020 CSA Project OntoCommons ([NMBP-39-2020-CSA - standardised data documentation](#)),
- collaboration with the Industry Commons Foundation (via workshops and conferences collaboration), and other relevant initiatives as elements from the **MarketPlace** and **VIMMP**, it has also been used to facilitate enhanced interoperability and integration into the EU Ecosystem, including integration with **DOME 4.0** project, approved under the call NMBP-40-2020 - *data marketplaces*.

A main goal of OpenModel is to facilitate the creation of an **Integrated Materials Development Environment (IMDE)** for Europe, in this matter **Task 7.2** addresses further challenges for cooperation, networking, and most importantly, routes to achieve a collaboration towards the common goal of establishing this ecosystem, especially with the EMMC umbrella projects Figure 1.

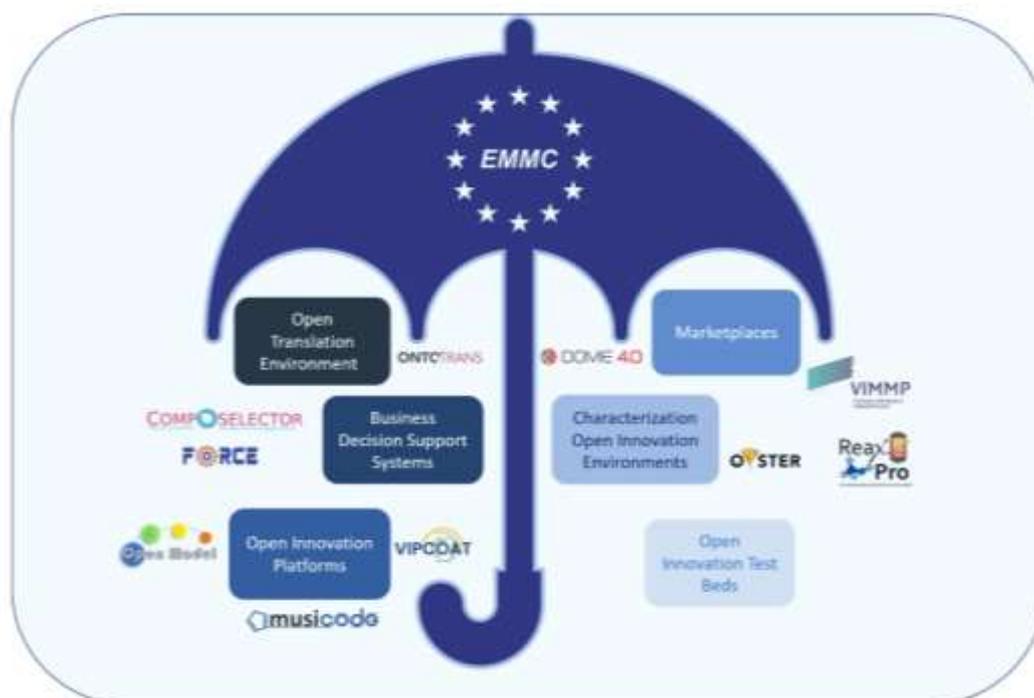


Figure 1: An overview of EMMC umbrella projects and other European Initiatives (e.g. Test Beds) considered for cooperation with OpenModel.

## 2.2 EXTERNAL ADVISORY BOARD (EAB)

The **External Advisory Board (EAB)** is crucial for the cooperation activities of WP7, which will ensure strong interaction with all initiatives that are key to building an integrated materials development environment. The **EAB** is a tool that provides the cooperation with relevant stakeholders to facilitate the interoperability and the cooperation within the partners and the project. It is formed by a group of experts who meets regularly within the OpenModel consortium throughout the project. The objective of their strategy is providing the team with technical input and feedback on the OpenModel activities, advise on links with relevant interest groups outside the consortium, propose and encourage the potential interactions of the project with other projects, initiatives and activities.

As an instrument, the EAB provides the coordination of cooperation between all the relevant stakeholders from marketplaces, OTE, ITB, OntoCommons CSA and characterization networks. The **EAB** is also relevant to support building relationships with stakeholders in Europe and internationally, as promoting and enhancing the external communication activities of the OpenModel project in order to ensure visibility of **Open Innovation Platforms (OIP)** to European manufacturers and further stakeholders. Furthermore, the EAB contributes to the establishment of a wide agreement on standards as well as specifications regarding data and ontologies.

The EAB members were appointed by the Executive Committee of OpenModel. The selection of potential members for the EAB was in agreement with all partners of the OpenModel project. These partners were invited to join the EAB. A NDA (Non-Disclosure Agreement) was signed with all EAB members in order to keep all the activities concerning the purpose EAB confidential and in accordance with the Grant Agreement (GA) and Consortium Agreement (CA). It is anticipated to not communicate, disclose or in any way divulge any information regarding this project to a third party. The institutions of the EAB members who actually signed the NDA and thus, joined the EAB are shown in the Table 1. Due to General Data Protection Regulation (EU GDPR) the names of the members are not cited. The EAB was established in *D8.3- Establishment of EAB* within T8.1, which is part of WP8.

	Institution
1.	Cognitive ST UG
2.	ASCO
3.	CNR-IOM Istituto Officina dei Materiali
4.	Dykerhoff GmbH
5.	ACCESS e.V.
6.	Czech Technical University in Prague /Faculty of Civil Engineering
7.	Norwegian University of Life Sciences / NMBU, Norway
8.	United Kingdom Research And Innovation - UKRI
9.	Technische Universität Wien - TU Wien

Table 1: List of OpenModel EAB members who signed the NDA and joined the EAB

### 3 SUPPORTIVE ACTIONS FOR COLLABORATION AND NETWORKING

OpenModel actively pursues networking as a means of effectively disseminating and communicating the project both within and outside the consortium. The project will leverage its partners existing relationships to address European collaboration platforms, associations, Digital Innovation Hubs, Open Innovation Test Beds (OITB), and other EU Projects, as recent well-established EU developments, e.g., SimPhoNy-OSP<sup>1</sup>. Such projects are in the core of the emerging EU Materials Modelling Marketplace and hence, provide direct connection and link to all services on the marketplaces. Example of EMMC umbrella projects and further European initiatives of interest are illustrated in Figure 2.

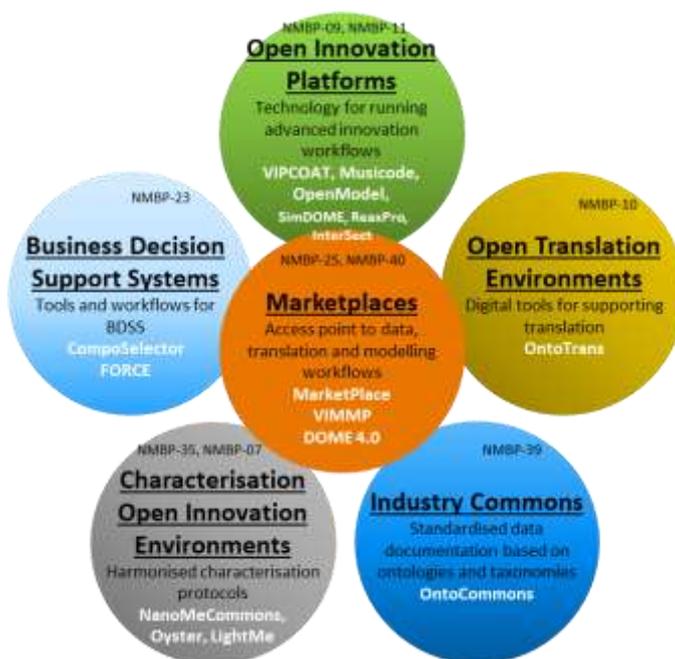


Figure 2: An overview of EMMC Umbrella projects and initiatives target for the OpenModel cooperation

OpenModel builds on and expands on a variety of Work Packages and EMMC actions in which its partners are heavily involved, and it has a direct connection into pre-existing H2020 project consortia. In Table 2, is shown a list of the most pertinent related activities and, for instance, some of the involved parties.

<sup>1</sup> see <https://the-marketplace-project.eu>

Action	Description	OpenModel partners involved
MarketPlace	MMMP: NMBP-25-2017	FRAUNHOFER, SINTEF, EPFL, GCL, DCS
VIMMP	MMMP: NMBP-25-2017	GCL, FRAUNHOFER
OYSTER	OIE, characterisation: NMBP-07-2017	IRES, FRAUNHOFER, GCL
OntoTrans	OTE: NMBP-10-2019	GCL, FRAUNHOFER, SINTEF, UNIBO, HEREON, CMCL
LightMe	ITB: NMBP-HUBS-2018	IRES
OntoCommons	Standardisation and ontologies: NMBP-39-2020 CSA	GCL, UNIBO, SINTEF, FRAUNHOFER, IRES, CNR
SimDOME	Materials modelling: DT-NMBP-09-2018	UNIBO, CMCL, FRAUNHOFER
INTERSECT	Materials modelling: DT-NMBP-09-2018	CNR, EPFL, FRAUNHOFER, AMAT
ReaxPro	Materials modelling: DT-NMBP-09-2018	FRAUNHOFER
TAIFUN	ERA-NET Cofund MarTERA -2019	SINTEF, HEREON
Zeocat-3D	H2020-NMBP-ST-IND-2018	DCS
DOME 4.0	H2020 NMBP-40-2020	CMCL, FRAUNHOFER, UNIBO, EPFL, SISW, SINTEF, UCL

**Table 2: List of linked activities with H2020 project consortia.**

OpenModel OIP itself and its services has been promoting actions to enforce a powerful communication infrastructure to:

- provide access to third party tools;
- access to EMMC public websites;
- provide technical documentation of the platforms itself as well as the services;
- reach public awareness and visibility via a website with social network connectivity;
- distribute periodic electronic newsletter and articles to the stakeholders registered on the platform;

The planned events will be organized or co-organized by the OpenModel consortium, for communicating to the audience, including:

- Training workshops, targeting multiple stakeholders, especially focused on ontology, OSP, and case studies;
- Dedicated webinars on selected topics;
- Active participation in relevant EMMC ASBL workshops and workshops of other related EU-projects, in particular those planned for translators and outreach to SMEs via industrial associations.

Publications proceed as follows:

- Flyers and press releases in case if new and exciting results are produced.
- Project features are prepared, and for each of the use cases a special feature is anticipated.

- Release of a future update of the Review of Materials Modelling (in collaboration with the European Community) is foreseen.
- Social media, like Twitter and LinkedIn for the general public, Research Gate entries to target scientist and engineers.
- OpenModel platform, and major related industry boards.

## 4 COLLABORATION PROJECTS, FURTHER INITIATIVES AND ONGOING ACTIVITIES

### 4.1 DT-NMBP-11-2020: OPENMODEL SISTER PROJECTS

The European Commission's cooperation and integration with other common projects will be used to enforce a rapid exploitation and potential cross-linking of project goals and marketing initiatives.

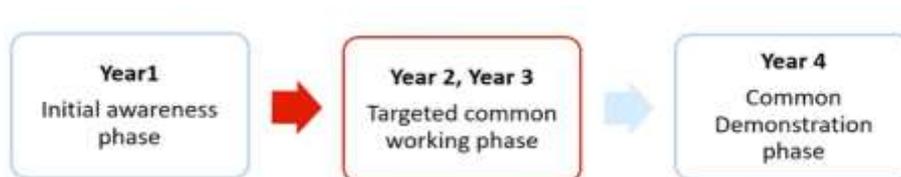
Three projects were approved under the [DT-NMBP-11-2020 - Open Innovation Platform for Materials Modelling \(RIA\)](#) programme **Table 3**. Those so called sister projects will cooperate and exchange knowledge.

	<p><b>OPENMODEL PROJECT</b> - OpenModel Integrated Open Access Materials Modelling Innovation Platform for Europe. (<a href="https://www.open-model.eu/">https://www.open-model.eu/</a>)</p>
	<p><b>VIPCOAT</b> - Virtual Open Innovation Platform for Active Protective Coatings Guided by Modelling and Optimization. (<a href="https://ms.hereon.de/vipcoat/">https://ms.hereon.de/vipcoat/</a>)</p>
	<p><b>MUSICODE</b> - An experimentally validated multi-scale materials, process and device modelling &amp; design platform enabling non-expert access to open innovation in the organic and large area electronics industry. (<a href="http://musicode.eu/">http://musicode.eu/</a>)</p>

**Table 3: Projects approved under the same H2020 call for proposal NMBP-11-2020 (sister projects)**

The OIP cooperation workshops gathers the three projects of OpenModel, VIPCOAT and MUSICODE (illustrated in the image above) to discuss the new achievements in each project and to debate about the interoperability mechanisms (e.g., ontologies). In the cooperation process, the OIP and the cooperation among the sister projects are running into the second year and moving forward in the identification of common work avenues to cooperate with.

The following figure demonstrates a general overview of the planned steps foreseen from OpenModel project for a cooperation among the OIP projects.



**Figure 3: Time plan of the OIP cooperation workshops/cooperation among the sister projects**

The common working phase includes the following points:

- Data model-based interoperability framework – Dlite (as in OntoTrans, VIPCOAT and OpenModel);
- OTEAPI (OpenTranslation Environment API);
- Ontologies (e.g., Hackathons in OntoCommons/OntoTrans); progressing to a common workflow ontology; EMMC task group was just formed (status from November 2022).

#### 4.1.1 OIP JOINT WORKSHOPS

The OIP projects regularly meet within joint workshops. The first workshop occurred in July 2021 and was organized by MUSICODE. MUSICODE aims at organizing the workshop every year and having it as a common event of the sister projects (MUSICODE, VIPCOAT and OpenModel). MUSICODE workshop was organized within the 14th International Symposium on Flexible Organic Electronics (ISFOE21) 5-8 July 2021, Thessaloniki, Greece ([www.nanotextology.com](http://www.nanotextology.com)). The Workshop on Open Innovation and Standardization for materials characterization, materials modelling and materials process and manufacturing organized by MUSICODE will take place on 08.07.2021 and all sister projects were presented. MUSICODE aims at organizing the workshop every year in frame of the International Symposium on Flexible Organic Electronics and having it as a common event of the sister projects (MUSICODE, VIPCOAT and OpenModel).

In addition, a first sister project hands on workshop were organized by VIPCOAT and took place on 02.09. and 03.09.2021. The focus was on introducing the projects and to discuss interoperability mechanisms (e.g. ontologies). VIPCOAT project led and prepared a white paper, introducing this cooperation between the sister projects, and specially building the business's brand of the OIP as establishing the expertise involved. VIPCOAT made the available to general public at the electronic address: <https://zenodo.org/record/5848552>.

The OpenModel project that took place 17.02.2022, online. Particularly significant about the workshop organized by OpenModel was that it took major attention by bringing ca 50 attendants, including the participation of industry stakeholders and other projects such ReaxPro, VIMMP and DOME4.0, which were invited for knowledge exchange. The invited projects also presented the objectives involved in each one and exposed some of its recent achievements and future outcomes considering the interoperability as current challenge, which is a major purpose of the workshops. It is planned to organize three workshop events per year.

In the OIP workshop organized by OpenModel on 17.02.2022 the main focus was set on increasing the participation in events, such symposiums open to external participants and use the active participation of EMMC to contribute to trainings more dedicated to the topic of ontologies. In summary, the following ongoing developments are of interest of OpenModel project and were suggested for common topics for joint work:

- Datamodel-based interoperability framework – Dlite (as in OntoTrans, VIPCOAT and OpenModel);
- OTEAPI (Open Translation Environment API);
- Ontologies (e.g. Hackathons in OntoCommons/OntoTrans); progressing to a common workflow ontology; it can be via an EMMC task group; at current already going on a group for OntoTrans and OpenModel, the developments can be extended for the bases of the future EMMC task on workflow ontologies.



**Figure 4: Participants of the workshop from 17th February 2021**

In the workshop, the main focus was set on increasing the participation in events, such as symposiums open to external participants and using the active participation of EMMC to contribute to trainings more dedicated to the topic of ontologies. An EMMC task force group is under organization for ontologies developments and cooperation among the OIP projects.

Furthermore, the OIP sister projects (OpenModel, MUSICODE and VIPCOAT) will continue the cooperation and activities via annual joint workshops, each time organized and hosted by one of the projects. The meetings timing is planned to take place in February, July, September-October being organized by OpenModel, MUSICODE and VIPCOT, respectively.

The following list shows the OIP events that already took place and the next OIP event, which will be on 9<sup>th</sup> February 2023 organized by OpenModel.

Date	Event	Organized by
08.07.2021	OIP Workshop	MUSICODE

01.09.2021-03.09.2021	OIP Workshop	VIPCOAT
17.02.2022	OIP Workshop	OpenModel
18.07.2022-22.07.2022	Summer School and OIP	MUSICODE
05.10.2022-06.10.2022	OIP Workshop	VIPCOAT
09.02.2023	OIP Workshop	OpenModel

**Table 4: List of OIP events**

## 4.2 PARTICIPATION OF EAB WITHIN OPENMODEL COOPERATION ACTIVITIES

The External Advisory Board is a group of experts who will meet regularly with the OpenModel consortium throughout the project. They will provide technical input and feedback on the OpenModel activities, advice on links with relevant interest groups outside the consortium, propose and encourage the potential interactions of the project with other projects, initiatives and activities. This section is about the recent EAB meeting within the OpenModel project.

On the 22<sup>nd</sup> September 2022 the coordinator of the project invited all EAB members to an online meeting in order to introduce the members to the OpenModel project and to clarify about their upcoming participation in the project. Also the OpenModel partners were participating and supporting this meeting.

### 4.2.1 AGENDA

The agenda of the External Advisory Board Meeting was as follows:

14:00:	Welcome Greetings (OpenModel coordinators and WP leaders)
14:10 – 14:45:	Introduction Round (EAB, OpenModel members)
14:45 – 15:15:	Introduction to OpenModel project (Welchy Leite Cavalcanti/IFAM, Jesper Friis/SINTEF, Emanuele Ghedini/UNIBO)
15:15 – 15:45:	Brainstorming of possibilities of joint activities based on current status /next meeting/next steps
16:00:	End of Meeting
Remarks:	save the date for the next meeting M24 OpenModel consortium meeting which will be from 07.02. to 09.02.2023. Including one day OIP projects meeting (on 09.02.2023)

### 4.2.2 PARTICIPANTS

The EAB members and OpenModel partners present at the EAB meeting from 22.09.2022 were:

Participants from OpenModel consortium	EAB members participants
Fraunhofer	Cognitive ST UG
CNR	ASCO
UNIBO	CNR-IOM Istituto Officina dei Materiali
CMCL	Dykerhoff GmbH
HEREON	Czech Technical University in Prague /Faculty of Civil Engineering
GCL	Norwegian University of Life Sciences / NMBU, Norway
SINTEF	United Kingdom Research And Innovation - UKRI
UCL	

**Table 5: Participants from OpenModel consortium and EAB member participants**

### 4.2.3 COURSE OF MEETING

In the beginning of the meeting, the coordinator presented the outline, which consisted of an EAB and OpenModel introduction round, an introduction to the meeting, the current status of the OpenModel project and the avenues for the cooperation and for exchange. Furthermore, the EAB members introduced themselves as well as the company and their area of interest in the project to the other participants. After the short presentation of the EAB members, the OpenModel partners of each institution shortly introduced themselves and the respective work packages they participate in within the OpenModel project to the EAB members.

When introducing the OpenModel project, the general information of the project, such as the duration, full name of the project and the aims were shared. In addition, the motivation, which is to provide technology for running advanced innovation flows, and the main concepts were presented. Also, the work packages were part of the presentation since they are built to achieve the aims of the project and therefore are very important. In total, there are eight work packages, which are focusing on platform design and development, services, and demonstration and exploitation.

After the presentation by the coordinator, the WP1 leader presented the OpenModel Ontologies and the OpenModel semantic workflow builder, called OntoFlow. He emphasized the currently developing workflow and model basics following the EMMO initiative. The EMMO is proposed by the EMMC in order to push for interoperability in the materials world but now the ambition is in the applied science world. The EMMO is aiming to be a framework based on fundamental principles coming from quantum physics. The structure is a causal network of relations connecting ontological entities, which is rooted in quantum physics. In particular, the OpenModel project focuses on the workflow ontology, the performance attribute ontology, and the generic verification and validation ontology.

In addition, he pointed out that an EMMC ontology task group will be formed in order to create a taxonomy for workflows. The workflow ontologies developed in this task group will be an important brick in the overall digital-

isation eco-system developments within the umbrella of EMMC. The focus areas are digitalisation and interoperability as well as software. Beside the aim of creating a taxonomy, the task group further has the objectives to consolidate the way workflows are described with EMMO, create a domain ontology extending the EMMO workflow description with technical aspects like conditionals, events, etc., and to demonstrate translation between the ontological description and existing standards, like the Common Workflow Language (CWL) and Business Process Model and Notation (BPMN).

Afterwards the technical manager explained the outcome of Ontoflow and described the OpenModel workflow executor, which is called ExecFlow, as well as the six success stories as part of WP5. The workflows and the success stories are a crucial part of achieving the open innovation platform for accelerated materials design and innovation.

Furthermore, the coordinator showed the current developments of the project to see where a contribution of the EAB members can take place. The avenues for the EAB members possible participation are the following:



Figure 5: Avenues for EAB member contribution

Each EAB member had the possibility to choose their participation in the OpenModel project according to their interest in the avenues. The table below shows the EAB members and their respective area of interest.

	Institution	Area of interest
1.	Cognitive ST UG	AI ( validation, prediction – data collection)
2.	ASCO	Success Stories (SS2)
3.	CNR-IOM Istituto Officina dei Materiali	Model tools in frame of Success Stories, ontology on atomistic structures
4.	Dykerhoff GmbH	Success Stories (SS3)
5.	Czech Technical University in Prague /Faculty of Civil Engineering	EMMC workflow ontology task group, interoperability framework- software

	Institution	Area of interest
6.	Norwegian University of Life Sciences / NMBU, Norway	EMMC workflow ontology task group, Success Story 6
7.	United Kingdom Research And Innovation – UKRI	EMMC workflow ontology task group, model tools in frame of Success Stories (SS6)

**Table 6:** List of EAB members and their respective area of interest on OpenModel.

By the end of the meeting, the partners answered the questions that came up during the meeting. All the partners who participated showed a huge interest in the cooperation within the OpenModel project. Especially the EMMC ontology task group was an attracting area of participation of the EAB members. The partners and EAB members were showing excitement and the overall atmosphere of the meeting was pleasant and enjoyable. By the end of the meeting, the partners and EAB members agreed in taking a picture. The next activities among OpenModel and the EAB will be from 07.02 to 09.02.2023 within the OpenModel consortium meeting and the next OIP workshop.

#### 4.3 COOPERATION IN FRAME OF THE DISSEMINATION ACTIVITIES PERFORMED

OpenModel will be presented and demonstrated at events and in forums relevant to the scope of the project, both within EU and internationally. For this matter, workshops will be chosen to make OpenModel results renowned both in academia and relevant industry.

In order to increase the social and economic impact of the project's research and innovation activities, it is important to disseminate the OpenModel project. Exchange and collaboration are crucial to enable the dissemination of the project's accomplishments and helps the general public to gain an understanding of the overall challenges and potential solutions. Hence, the OpenModel partners target cooperation actions on events, such as workshops, conferences, etc. in the frame of the EMMC ABSL and other initiatives. As stated in *D6.1- Communication and Dissemination Plan*, which was delivered in in the context of *WP6- Dissemination and Exploitation*, more precisely as part of *Task 6.1 - Communication and Dissemination*, the activities will be aimed at promoting the OpenModel project to a variety of audiences, including groups outside of the project's internal communities, as well as wider audiences, such as the media and the general public, in order to raise awareness on the topics addressed and the project findings.

WP6 ensures that project results are effectively communicated and disseminated to all stakeholders, and that the project maximizes the exploitation potential for all partners, both individually at each partner organization and collectively in preparing well-founded plans for the platform's sustainability beyond the funding period. As part of WP6, Fraunhofer is monitoring the dissemination activities of the OpenModel project.

According to the OpenModel Grant Agreement (*Article 29, Paragraph 29.1*), before disseminating any results, a partner needs to get approval by all other OpenModel partners. For this, a certain procedure has to be followed by every partner when disseminating any content related to OpenModel. The dissemination procedure needs to be followed to document the participation in order to track all the events where the project was presented to report the EC. For the dissemination request procedure a tool named Terminplaner 4.1 is used. In order to dis-

seminate content the partners need to send a request e-mail to [openmodel-dissemination-request@ifam.fraunhofer.de](mailto:openmodel-dissemination-request@ifam.fraunhofer.de) including the dissemination files and relevant information, such as dissemination type, name of event, location, date of event, and the material to disseminate. Then, every consortium partner will receive an e-mail from Fraunhofer IFAM containing the link to the poll and will be asked for the approval of dissemination activities. Also included, is the password of the poll to access.

The dissemination activities are constantly updated by Fraunhofer and are uploaded for the OpenModel consortium at Fraunhofer Owncloud: [https://owncloud.fraunhofer.de/index.php/apps/files/?dir=/OpenModel\\_Consortium/OpenModel\\_WP6\\_Dissemination%20and%20Exploitation/OpenModel\\_Dissemination\\_material/OpenModel\\_Dissemination\\_Activities&fileid=619403653](https://owncloud.fraunhofer.de/index.php/apps/files/?dir=/OpenModel_Consortium/OpenModel_WP6_Dissemination%20and%20Exploitation/OpenModel_Dissemination_material/OpenModel_Dissemination_Activities&fileid=619403653).

Some of the events and publications OpenModel was disseminated at are presented in Table 7.

Date	Partner	Event
02.03.2021 – 04.03.2021	SISW	3 <sup>rd</sup> EMMC International Workshop 2021
20.07.2021 – 21.07.2021	HEREON	Virtual Materials Design 2021
08.07.2021	FRAUNHOFER	ISFOE21 conference
17.02.2022	SINTEF	OIP Workshop
16.03.2022	SINTEF	1 <sup>st</sup> Open OntoTrans Workshop
13.04.2022	CMCL	Pune Smart City, India
05.05.2022	SINTEF	EMMC Focus Area Interoperability & Digitalisation Meeting
14.06.2022 – 16.06.2022	SINTEF	CaNAI Summer School
27.06.2022	CNR	9 <sup>th</sup> Forum on New Materials – CIMTEC2022
04.07.2022 – 05.07.2022	GCL	ISFOE22 conference
22.07.2022	FRAUNHOFER, CNR	MUSICODE, Summer School on Multiscale Modelling and OIP
28.08.2022	HEREON, SINTEF	EuroCorr22
04.09.2022- 08.09.2022	SINTEF	ICAA 18
18.09.2022 – 22.09.2022	DCS	9 <sup>th</sup> World Congress on Particle Technology (WCPT9)
27.09.2022	HEREON, SINTEF	MSE 2022
05.10.2022	SINTEF, HEREON, SISW	Collaborative Workshop Open Innovation Facilitation in Horizon Europe
24.01.2023	SINTEF	Webinar, DigiPro- Norwegian national Centre for digitalisation of the process industry., January 24. 2023,

		<a href="https://www.digipro-centre.no/event-details/ontology-a-language-connecting-humans-and-computers">https://www.digipro-centre.no/event-details/ontology-a-language-connecting-humans-and-computers</a>
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**Table 7: Examples of dissemination activities performed by OpenModel partners.**

Also as part of the dissemination, OpenModel has been acknowledged and therefore disseminated in several publications, which are shown in the following table.

Authors	Title
Natalia Konchakova; Peter Klein (VIPCOAT); Elefterios Lidorikis; Argiris Laskarakis (MUSICODE); Welchy Leite Cavalcanti; Jesper Friis (OpenModel)	Open Innovation in Horizon Europe <a href="https://doi.org/10.5281/zenodo.5848552">DOI: 10.5281/zenodo.5848552</a>
Francesco Tavanti and Arrigo Calzolari	Multi-technique Approach to Unravel the (Dis)order in Amorphous Materials <a href="https://pubs.acs.org/doi/10.1021/acsomega.2c01359?goto=supporting-info">https://pubs.acs.org/doi/10.1021/acsomega.2c01359?goto=supporting-info</a>
Amine Slassi	Band offset engineering at C <sub>2</sub> N/MSe <sub>2</sub> (M = Mo, W) interfaces <a href="https://doi.org/10.1039/D2RA00847E">https://doi.org/10.1039/D2RA00847E</a>

**Table 8: Publications, in which OpenModel has been disseminated. Full access link available at: [Publications - OpenModel \(openmodel.eu\)](https://openmodel.eu)**

#### 4.4 COOPERATION PERFORMED BY INDIVIDUAL PARTNERS

All OpenModel partners are involved in further projects, especially in frame of the EMMC umbrella. Within these activities OpenModel has been disseminated and the partners had the opportunity to promote cooperation of the project. The Table 8 contains some examples of the initiatives the individual partners are involved with and where OpenModel results are shared and re-used.

No.	Partner	Example of initiatives as H2020 projects where OpenModel is considered for cooperation
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1	FRAUNHOFER	FRAUNHOFER IWM: MarketPlace (GA 760173); OntoComons (GA 958371); SimDOME (GA 814492) FRAUNHOFER IFAM: VIMMP(GA 760907); DOME 4.0 (GA 953163) FRAUNHOFER IWM and IFAM: OntoTrans (GA 862136); ReaxPro (GA 814416)
5	UNIBO	OntoTrans (GA 862136); SimDOME (GA 814492); OntoCommons (GA 958371); DOME 4.0 (GA 953163)
	CMCL	OntoTrans (GA 862136); SimDOME (GA 814492); DOME 4.0 (GA 953163)
7	SISW	DOME 4.0 (GA 953163)
8	HEREON	VIPCOAT (GA 952903); OntoTrans (GA 862136)
10	GCL	MarketPlace (GA 760173); OntoTrans (GA 862136); OntoCommons (GA 958371)
11	SINTEF	MarketPlace (GA 760173); OntoTrans (GA 862136); OntoCommons (GA 958371); DOME 4.0 (GA 953163)
13	EPFL	MarketPlace (GA 760173); DOME 4.0 (GA 953163)
14	UCL	DOME 4.0 (GA 953163)

Table 9: Examples of the initiatives the individual partners are involved with

## 5 SUMMARY AND WORK IN PROGRESS

The D7.3 enables OpenModel to establish direct cooperation with the sister projects. For the scalability achievement through collaboration, the OpenModel project has been planning active participation in European Commission (EC) supported initiatives and collaboration instruments throughout the project and beyond. In summary, the OIP project is opening an effective possibility for establishing cooperation.

The **external advisory board (EAB)** is a major tool for cooperation and is the instrument through which OpenModel coordinates cooperation with relevant stakeholders from **marketplaces, OTE, ITB, OntoCommons CSA** and characterisation networks to establish a wide agreement on standards/specifications regarding data and ontologies (Task 7.3).

Regarding action on the event's organization, OpenModel held the workshop in February 2022 to meet the cooperation with OIP Projects (MUSICODE, VIPCOAT). The event was a significant step toward defining a topic of common collaboration. The next major steps in this topic for the following months is related to the organization of an EMMC task group for workflow ontologies, following the success of the hackathons structured and organized by OntoTrans project.

Further steps include the definition of main groups for cooperation and the planning of cooperation activities related to the project work where most achievements e.g. workflow ontologies, definition of participants and organization of the EMMC task group.

The cooperation and networking with the OIP sister projects (MUSICODE and VIPCOAT) will continue as the series of annual joint workshops; each time organized and hosted by one of the projects. Being the OpenModel responsibility the event to be organized each February.

## 6 BIBLIOGRAPHY

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*OpenModel Consortium Agreement- based on DESCA2020 Version 1.2.4 (2021)*

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