



Knowledge & Technology Transfer of Emerging Materials &  
Technologies through a Design-Driven Approach

## 4.3 KNOWLEDGE TRANSFER LABS

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## Datemats

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& Technologies through a Design-Driven Approach

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Knowledge & Technology Transfer of Emerging Materials & Technologies through a Design-Driven Approach

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## **EXECUTIVE SUMMARY**

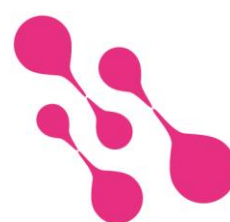
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This document reports the development and outcomes of task 4.3 Knowledge Transfer Labs. These are a series of workshops performed by the organizations of industries in collaboration with the HEIs. They are meant to test and evaluate the Guidebook defined in task 4.2 and the material sample toolkits from task 3.5, to further improve their suitability as means of Knowledge transfer regarding EM&Ts. The workshops included 94 companies, design studios or design professionals over a series of four labs in Sweden, Spain and Italy. The workshops were delayed due to the Covid-19 pandemic but took place during September and October 2020, led by IDC, and involving BCD, FAD, Materially, KEA, Tecnun, Aalto and Polimi.

This task is part of Work Package 4, aiming to define a proper method to transfer knowledge from Academia to the business world.

According to the Project Description, Deliverable 4.3 consists of the execution of four workshops involving at least 70 companies.

This document contains recommendations for future development of workshops and the EM&T Transfer Toolkit, as well as a detailed agenda for the final workshop. It also includes results and comments from each workshop evaluated attached as annexes to the document.



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# 1 INTRODUCTION

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This document reports the planning, execution and results from the four Knowledge Transfer Labs carried out to test and evaluate methods and tools developed in previous tasks of the project:

- Methods from task 4.2: “GUIDEBOOK: Definition of training contents and exercises production addressed to companies” developed by Tecnun.
- The drafts of the EM&T transfer kits (developed in task 3.5), consisting of physical material samples and fact sheets describing the applications, properties, and ways of shaping the selected materials. This first version of the toolkit was developed by Material Connexion Italy and MaterFAD.

The Covid-19 situation has been a challenge, in reaching the intended amount of companies at the same time as maintaining restrictions in number of participants, social distancing guidelines etc.

The Knowledge Transfer Labs are part of Work Package 4, aiming to define a proper method to transfer knowledge from Academia to the business world.

## 1.1 AIMS AND OBJECTIVES

The purpose of the knowledge transfer labs was: 1) to test a the EM&T knowledge transfer method developed, 2) to evaluate and refine the toolkit for knowledge transfer and 3) to select/engage companies for further involvement in the remaining activities of the project.

The workshops will set a common ground to define the best knowledge transfer methods to the companies and consequently adapt the University current methods to companies’ needs. The labs will involve at least 70 enterprises, both material manufacturers and end-user companies, and will be an occasion to select some of the enterprises will participate to the interdisciplinary workshops T.5.3.

As described in the project description: The HEIs and transfer centres will lead several learning labs during which it will explain the used methods for EM&Ts and past experience of collaboration with companies to figure out the efficacy of the knowledge transfer methods to the companies and consequently adapt the methods to companies’ needs. During each Transfer Lab the HEIs will also use the draft of the EM&T transfer kits to 3) figure out if they are a correct tool to use for the Knowledge transfer.

## 2 METHODOLOGY

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In this section, the process of deciding the format of the workshop is described.

### 2.1 IDENTIFYING CHALLENGES & SETTING A FORMAT

With four workshops that would cover four EM&T areas, take place in three different countries (Sweden, Spain & Italy), with researchers from two of these countries (Spain & Italy), but also two other countries (Denmark & Finland) and an ongoing pandemic, there was a lot of complexity surrounding the planning and possible variations. Four alternative concepts were firstly developed for further discussion among the partners:

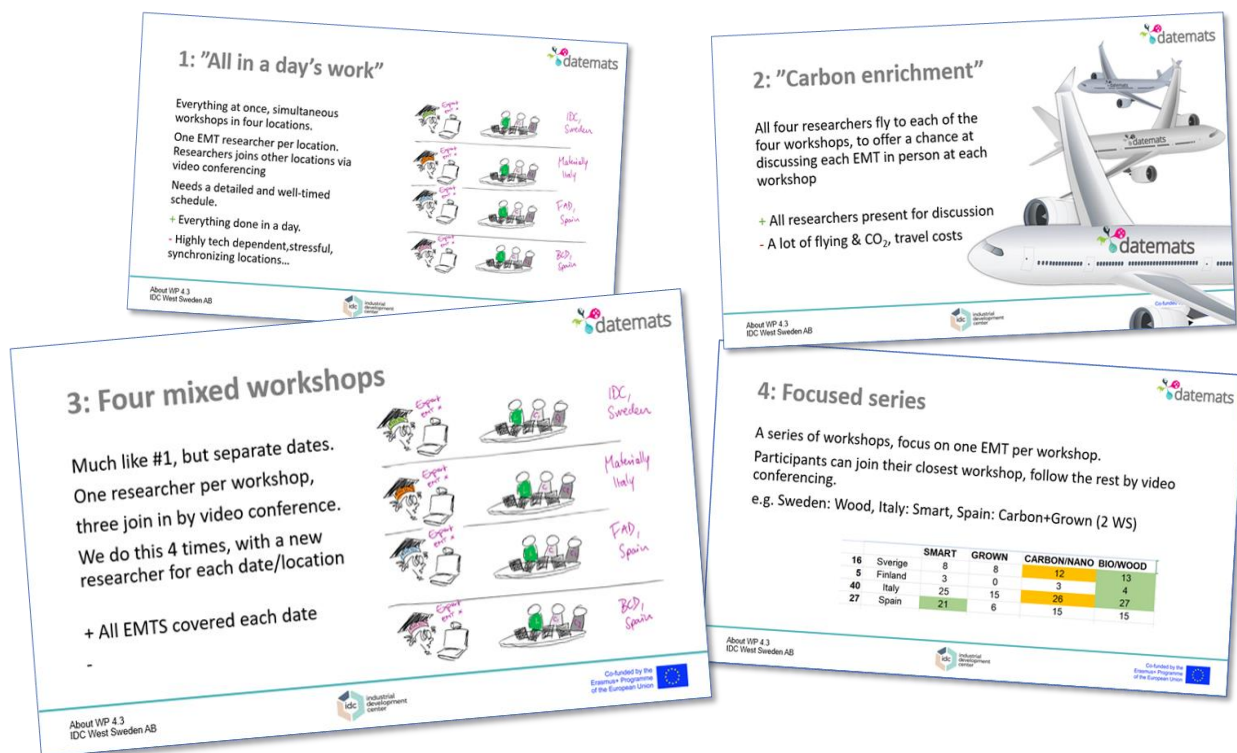


Fig. 1: Alternative workshop format concepts

1. All in a day's work: with an online setup, all four workshops could be synced and performed simultaneously in one day. This would require four Material Toolkits.
2. Carbon enrichment: a completely non-online setup that would require a lot of travel for the material experts.
3. Four mixed workshops: a mix between on location and online could have the closest researcher on location and the rest online, which would reduce travel. Four separate dates, all materials covered each time.
4. Focused series: four separate workshops focusing only on one material category each time. E.g. grown materials in Sweden, Nano-materials in Barcelona etc. Participants interested in multiple material groups would need to join several workshops.

A few guidelines were drafted after a transnational online meeting in MS Teams. To attract as many companies as possible for each workshop, it was decided that...

1. all EM&T areas would be covered in each workshop. That meant that
2. all experts need to be involved in each workshop, and to reduce travel,
3. one expert would be on location and the rest would join via video conference.
4. There needed to be an option for participants to join online, if restrictions due to Covid-19 would be in place. However, online participants would not be able to fully experience the material samples of the EM&T Transfer Toolkit developed in task 3.5 but would be able to access fact sheets and pictures.

A suitable duration would be around 4h, excluding breaks, and the platform Zoom was deemed more suitable than e.g. MS Teams for usability reasons.

## 2.2 CLARIFYING THE PROCESS

Key stakeholders in the processes were the Higher Education Institutions, that would benefit from the feedback given by participants. It was also necessary to create meaningful content for the companies,

to attract them to the workshops. To plan and identify activities, the work process was divided in three parts: before, during and after the workshop itself. Work before the actual workshop included generating interest and desire among companies, recruitment process, invitations etc. Another reason for this was to make sure the rather limited time during the actual workshop was spent on collaboration and discussion, rather than one-directional information which could be sent out before or after.

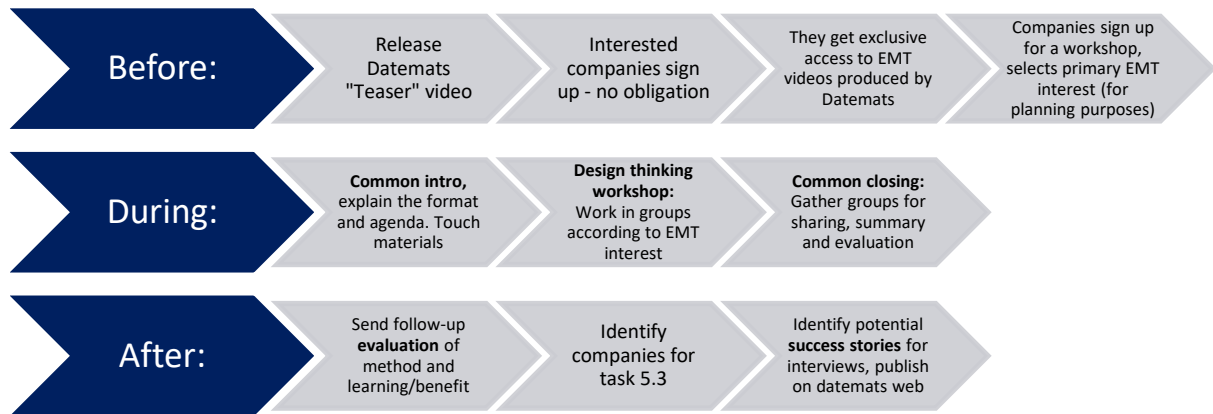


Fig. 2: Identifying activities in a three-step process

## 2.3 SELECTING AND INVITING COMPANIES

Invitations were sent out to hand-picked companies that were likely to have an interest in the topic, as well as a more general campaign through the involved organisations' web sites and social media accounts. It was also posted on the news section of the Datemats website.

Companies & Design studios/professionals were selected as participants. The workshops also generated interest among students and academia staff, but these were not the main target group for the workshop and were not selected for participation.

A teaser video<sup>1</sup> was developed by Materiality to be included in invitations and social media posts to generate interest in the project and the Knowledge Transfer Labs.

To get a flying start for the workshop, participants had a chance to learn about the material groups before. The invitation letter for the first workshop stressed that videos and learning materials were available online and encouraged participants to watch them.

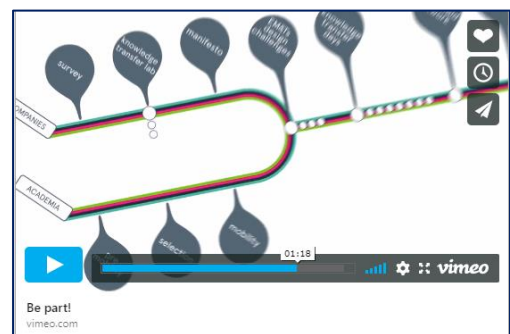


Fig. 3: Screenshot from the teaser video

## 2.4 DETAILING THE AGENDA AND TECHNOLOGY IN A HYBRID SETTING

Managing a hybrid workshop setting with participants working actively in groups both on location and online required lots of planning and technology. Computers with Zoom, webcam and microphone for each station and additional units covering the stage and a mobile unit for additional angles. The EM&T Transfer toolkits were provided as downloadable pdf files for the online participants through the Datemats Google Drive. Virtual replacements for whiteboards were solved using Google Jamboard. To

<sup>1</sup> available at [vimeo.com/437895046](https://vimeo.com/437895046)



bridge the gap between on location and online participants, photos of the whiteboards used by on location participants were uploaded to the Jamboard, and Jamboards were printed out and posted on actual whiteboards in the room. A key role in managing the workshop was a person that would act as the host in Zoom, controlling the chat, dividing people in breakout rooms etc. To manage all this, a detailed schedule for each phase describing roles and tasks was available to staff. A detailed agenda was also provided to participants, including links to online assets such as the EM&T Transfer toolkit, whiteboard tools, evaluation etc.

For the first workshop at IDC, the staff on location were three people:

- **Host:** the main moderator, welcoming participants, explaining the project, agenda etc.
- **Workshop facilitator:** guiding participants through the Design Thinking workshop tasks.
- **IT coordinator:** managing zoom, placing participants into their desired breakout room, monitoring chat, setting the spotlight on the right speaker/document etc.

Four material experts were also online, representing one EM&T area each. (Mette Bak-Andersen from KEA, Pirjo Kääriäinen from Aalto, Robert Thompson from Tecnun and Stefano Parisi from Polimi)

For the last workshop, the staff was expanded to nine people on location, plus three experts online:

- A **moderator**,
- A **Material expert** & table facilitator,
- An **IT coordinator**/Online management
- Three people working **logistics or communication**
- Two additional **table facilitators**,
- A mixed role (logistic, communication, table facilitator)

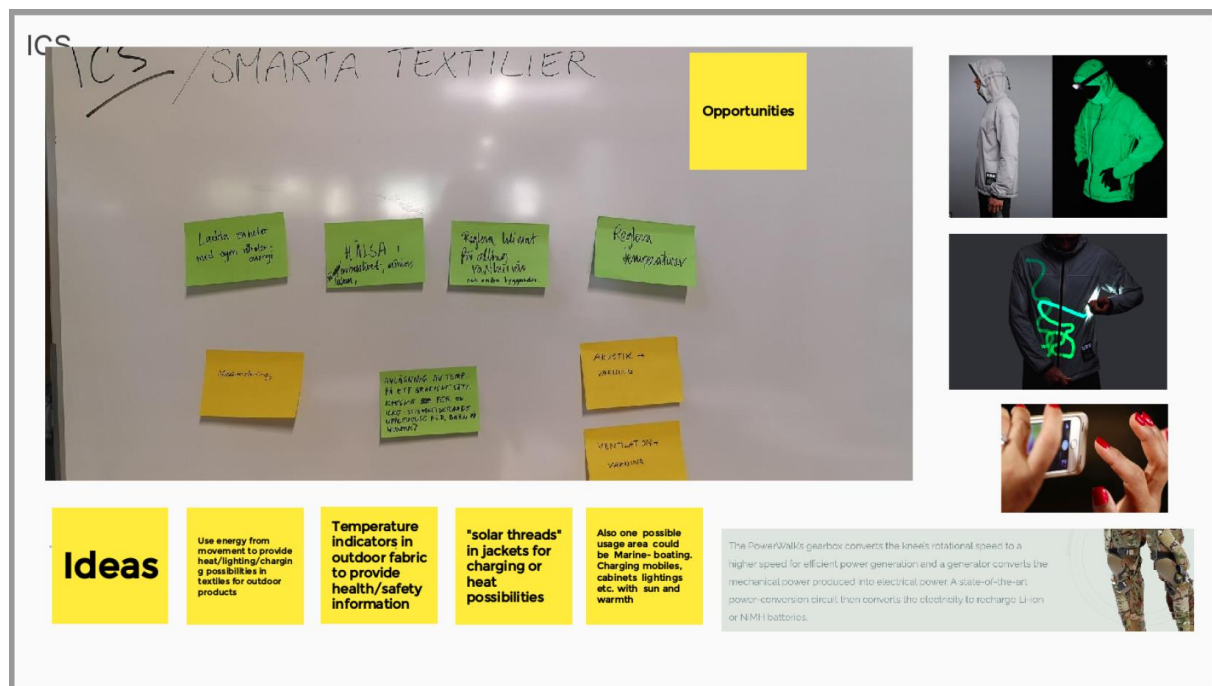


Fig. 4: Google jamboard used by online participants, with uploaded photo of actual whiteboard.

## 2.5 DEVELOPING EVALUATION QUESTIONS AND FORMAT

A key purpose of the workshop was to evaluate the method for knowledge transfer described in task 4.2, and the Knowledge Transfer Toolkits developed in task 3.5. The evaluation needed to cover all-

important aspects of the workshop in a short format. A matrix was used to outline the main sections of the Knowledge Transfer Labs and covering both content, relevance and delivery of each: Pre-workshop videos, Presentations from material experts, The EM&T Transfer Toolkit and the Workshop format/method.

A draft of initial questions was shared online so that project partners could input their suggestions for questions. After questions were selected, online forms for each workshop was created using mentimeter.com or google forms. It was also very important to have open ended questions to receive comments and feedback on unanticipated issues.

## 2.6 DEVELOPING AND REFINING THE KNOWLEDGE TRANSFER LABS

After each of the workshops, online meetings were held between the involved partners and the team meant to host the next workshop in the scheduled timeline. This was a crucial activity to transfer knowledge and experiences in the team, to provide feedback on what had worked well and what needed to be adjusted in the upcoming event.

## 3 RESULTS

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The four Knowledge Transfer Labs were in general appreciated by the participants. They generated positive comments in the evaluations and met the desired number of companies.

### 3.1 WORKSHOP AGENDA

An agenda with detailed descriptions for the final lab in Italy can be found in section 6.1. Below is an overview of the first lab in Sweden by IDC.

- 09:30 Introduction
- 10:00 **Material presentations** by researchers (via Zoom). 4\*15 min, Properties and possibilities
- 11:00 *Break*
- 11:15 **Design Thinking I: Discover and define opportunities.**  
Select a material to work with. Split up in groups according to EM&T area. Researchers are available for questions through Zoom breakout rooms.
- 12:00 *Lunch*
- 12:45 **Design Thinking II: Develop and deliver solutions.**  
Researchers are available through Zoom breakout rooms.
- 14:30 *Break*
- 14:45 Closing, evaluations. All done by 15:30!

After welcoming participants, material experts gave their 15-minute presentations of their respective material area. The audience could ask questions, and then go on to explore the material toolkits and further discuss with the experts through separate breakout rooms in Zoom. Participants were asked to come up with as many possible uses as possible for the various materials.

After the break, participants would select promising ideas to further develop and make simple mock-up models, illustrating and explaining their ideas. Potential material uses sparked new questions among participants, which they could discuss with the experts. There was more activity among the participants on site, although some online participants also made sketches and product ideas, even though lacking both material samples and prototyping materials. After a while, groups would present their best ideas to other groups to receive feedback, before finalizing a concept and presenting it to the group.



Fig. 5: Onsite and online participants pitching ideas to each other through Zoom.

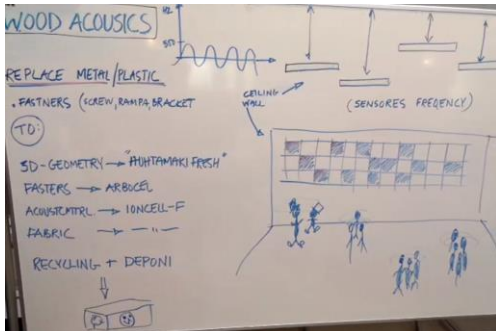


Fig. 6: Design concept of wood-based acoustic panels



Fig. 7: A group presenting a smart textiles-based sound absorbing product that also changes colour when the sound is too loud.

### 3.2 NUMBER OF PARTICIPANTS

The initial goal of involving 70 companies was exceeded, thanks to the possibility of joining through online participation. The total number of unique companies, design studios or professionals was 94. The total number of people was 124.

Event	Participants On site	Participants Online	Number of companies
Sweden	13	17	14
Spain, 29th	18	16	28
Spain, 30th	14	11	25
Italy	14	21	27
<b>Sum:</b>	<b>59</b>	<b>65</b>	<b>94</b>

### 3.3 EVALUATION RESULTS

In general, all four workshops were successful and appreciated by the participants. Discussions about the evaluation results and experiences from organizers helped in quickly improving nearly all aspects of the workshop for subsequent workshops. The pilot workshop in Sweden scored lower than the following, which could be expected. An interesting aspect is that the videos or toolkits did not change over time but got notably lower scores in Sweden. Although it might be due to cultural differences, but after the evaluation of the first workshop, the videos were promoted differently for the following workshops. Less emphasis was put on videos as a “prerequisite” for the workshop, and more as a part of the project outcomes, together with the recently released Datemats e-book. This may have changed expectations for the videos. The toolkits may have been presented in a different way, and as they were presented earlier in the agenda, more time was given to explore and understand them.

Event	Average:	Fun	Interesting	Inspiring
Sweden	3.7	3.9	4.1	4.3
Spain. 29th	4.4	4.0	4.8	4.4
Spain. 30th	4.5	4.3	4.8	4.6
Italy	4.3	4.2	4.6	4.5

**Experts presentations:** Presentations from experts have improved after the feedback from the first workshop – they were easier to understand and presented in a more interesting way.

Event	The content was relevant	They were easy to understand	They were presented in an interesting way
Sweden	4.5	3.4	3.6
Spain, 29th	4.5	4.4	4.3
Spain, 30th	4.6	4.7	4.5
Italy	4.4	4.2	4.2

**The format of the workshop** was also refined. After feedback from on location participants that they had to wait while online participants had lengthy discussion with the experts, the experts were made more accessible through separate time slots for online/on site participants.

Event	Having access to the experts was very valuable	Working with people from other companies/roles helped generate new ideas	This was a suitable format to explore materials possibilities and properties
Sweden	4.2	4.6	3.6
Spain, 29th	4.9	4.6	4.4
Spain, 30th	4.9	4.6	4.3
Italy	4.5	4.4	4.5

The **material toolkits** did not change over time, but an earlier introduction and more time allotted in the agenda to explore them may have helped.

Event	The selection of materials was adequate and diverse enough	The information on the datasheets was relevant	The information on the datasheets was easy to understand	Categorizing in Understanding/ Shaping/Applying was good
Sweden	3.6	3.6	3.0	3.4
Spain, 29th	4.1	4.2	4.2	4.3
Spain, 30th	4.4	4.3	4.1	4.5
Italy	4.3	4.3	4.4	4.4

The **videos** explaining the materials were initially not targeted to companies, but rather to students. They did not change over time but were not pushed in the same way for subsequent workshops.

Event	The videos were an effective way to introduce the subject	The content was relevant and interesting	The subject was explained in a way that was easy to grasp
Sweden	2.9	2.9	2.8
Spain, 29th	4.2	4.4	4.5
Spain, 30th	4.4	4.8	4.6
Italy	3.7	4.2	4.1

When asked to rate the most valuable activities for their learning, participants put presentations from the experts and the opportunity to interact with them at the top of their list. Collaborating with other professionals was also a popular choice. This would be relatively easy to offer again through simple, separate zoom sessions. However, the process might give other benefits than just “learning”, and the format may spark new ideas and inspiration.

### 3.4 COMMENTS FROM EVALUATIONS

Participants were asked to provide feedback and input for future development of the workshop. A full list of the input given can be seen in section 6.2. In summary, many people wanted more time for presentations, more time to discuss with researchers, have access to lecture notes beforehand, and more material samples to experiment with.



## 4 DISCUSSION

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Delayed by the ongoing pandemic, the four knowledge transfer labs were finally carried out in a hybrid format, mixing both online and on location participants, following all current restrictions. Engaging online participants in collaboration activities is a challenge, and even more so when trying to create interaction with a group of people on location. Organizing more workshops would surely be easier if all participants were either on location or online, as materials are best experienced in person, but the online option makes it easier to attract more people that during the restrictions were not allowed to travel, or does not have the time to travel. This has been a learning experience that will undoubtedly come to good use in the future.

### 4.1 MEETING THE GOALS:

The purpose of the workshops as defined in the project description was described in three points:

1. **Define the best method of knowledge transfer**

To define the best method, more options might have to be tested and evaluated. The task itself prescribed a workshop format, which may or may not be the best method. After the format for this workshop was defined, only one option has been truly tested, but out of the four concepts presented, the selected approach was the most suitable given the circumstances and need to reach quantitative goals. The participants seemed happy, especially with the presentations given by experts, but the workshop design task has likely sparked new questions that facilitated the discussions with the experts.

2. **Adapt current methods to company needs**

This activity has brought academia and industry together. Although the Design Thinking approach was appreciated, expert presentations/interactions was most valuable for learning. A simpler format could easily be offered through simple video conferencing sessions between material experts and companies, but as discussed in the previous section, the workshop task may have facilitated the discussion.

3. **Evaluate if EM&T transfer kits are a suitable tool for knowledge transfer**

Positive evaluations were received. Quite a lot of constructive and useful feedback was provided. More understanding of the participants' experience might be achieved through interviews or focus groups, but it would be more time-consuming and impractical. Many people had wished for more samples that could be experimented on and tested. Some people provided useful comments for improvements that are likely easy to implement – it is easy to print and replace info sheets. The toolkits were developed to be used in person, but perhaps a future adaptation for easier online use is possible, or even necessary?

Quite a lot of constructive and useful feedback was provided from the participants. More understanding of the participants' experience might be achieved through interviews or focus groups, but it would be more time-consuming and impractical.

Discussions in a Datemats transnational online meeting about the experiences from staff involved in the labs, resulted in many ideas and comments. The material experts confirmed that they could see themselves doing this type of workshop again to transfer knowledge to industry. In general, the adaptation from the previous task, 4.2 (guidebook) to knowledge transfer labs, has worked well. The general structure of the workshop seems adequate when it is divided into the proposed two main sections: learning and applying. For the learning part, the guidebook proposed a set of videos to explain EM&Ts, in combination with questions to help consolidate the content of the videos. In the Knowledge

Transfer Lab, they were replaced by presentations by materials experts, covering the same subjects and by Q&A. The feedback from companies about the presentations of experts are positive.

The applying part was implemented as defined in the guidelines and worked. Online participation was challenging in several aspects, but in general received positive feedback. Being able to work with different people with different profiles and with experts has been enriching for participants.

## **4.2 ABOUT THE WORKSHOP FORMAT:**

In Italy, feedback from participants mentioned that having the possibility to work with and combine information from more than one EM&T area would be appreciated. The suggestion was to have expert teams as EM&T stations where participants can go according to their needs, and then join facilitators just for the design thinking activity. This was done in Sweden, where some concepts included multiple EM&T areas. Again, varying physical restrictions due to the corona virus have made this difficult in some regions.

Having more enlarged and multidisciplinary expert teams with the collaboration of other profiles (perhaps with engineers) would be helpful.

There is a big difference between receiving information and then creating with it. However, if someone already has knowledge, it is difficult to innovate; if someone has no knowledge, it is difficult for them to create. The backgrounds and experiences among the participants differ. Not all participants are necessarily used to creative design methods and guidelines or creative methods could further facilitate the process. Besides teaching them about the materials, we need also to teach them to create with those materials. Here is where the Datemats team could design a system that is shared internally, to aid the transition from giving information, breaking down again in really short components, answers to participants' questions, and be part of the brainstorming process. This process can be formalized in an internal document, a "Cookbook of creativity" to facilitate participants with no ideas to allow them to create, or the ones with pre-conceived ideas to allow them to innovate.

To support participants in presenting their concepts, a standard template to fill in (blank space for image, blank space for description, for technology, benefits, and problems/barriers you anticipate) should be developed and provided.

## **4.3 ABOUT THE MATERIAL TOOLKITS**

More and larger samples for each material is desirable. It is necessary to be able to actually test them, bend them, etc., to get an idea about the properties and explore materials physically. With a single, small sample for each material, that is not possible.

Some chosen materials are commercial products (on a higher Technology readiness level) rather than emerging, which was not the focus and made it sometimes difficult for experts, normally working with experimental and potential materials for intermediate products, to answer questions about these materials. Additional information about the materials should be available for researchers to be able to answer questions.

Also, some parameters on the datasheets need to be clarified. For example, differences about biodegradability and decomposability in different samples, according to different categorisation and standards existing around the world. This results in having two samples made of the same materials but having different nuances in the description. A similar issue exists with toxicity.

Perhaps materials could be selected according to the identified industrial sectors: architecture/construction, fashion, furniture, consumer electronics, automotive, packaging.

## 5 RECOMMENDATIONS

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Based on discussions in a Datemats transnational online meeting about the experiences from the Datemats members involved in the labs, some ideas and recommendations for future development are presented here.

### 5.1 WORKSHOP ADJUSTMENTS

- More time should be added, especially for working with the toolkits and discussing with experts. Preferably by an earlier introduction of the Toolkits.
- Allow participants to explore and include multiple EM&T categories in their designs.
- To avoid long waiting times to speak to experts, schedule separate slots for onsite and online participants.
- Develop and provide a presentation template to help participants communicate their solutions
- Consider recruiting more experts from other disciplines, e.g. engineers.

### 5.2 FINALIZING THE EM&T TRANSFER TOOLKITS

- For the final version of the EM&T Transfer Toolkit (T 5.4), the online version could be added to the Datemats website
- QR codes could lead to even more resources, including additional materials.
- For the physical version, the detachable datasheets easily fell out when handling the toolkits, so another solution should be considered.
- The material that the actual toolkit boxes are made from should be a sustainable material, that could tell its own story.
- More than one sample for each material is desirable: try to engage companies to send more samples. This not only enables experimentation, but also makes it easier for more participants to explore the samples as the experts are presenting them, allowing more time to explore the materials.
- Review and select relevant properties and information according to the specific EM&Ts areas. (biodegradability, toxicity, etc.).

## 6 ANNEXES

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6.1 Agenda for the final workshop in Milan

6.2 Comments from evaluations



## 6.1 AGENDA FROM THE FINAL KNOWLEDGE TRANSFER LAB

This detailed agenda explains the workshop for all involved stakeholders, aiding the facilitation.

Timings	Activity	Onsite Participants	Online Participants	Experts
<b>TIME</b>	<b>WORKSHOPS</b>			
9:00-9:30	<b>Welcome</b> Registration, Covid protocol	Arrival	-	-
9:30-9:45 (15 min)	<b>Introduction</b> Introduction to the project and to the workshops Programme review + Toolkit presentation	Sitting in [room name]	Connected to Zoom main room: [INSERT ZOOM LINK HERE]	
09:45-10:45 (1 h)	<b>EM&amp;Ts presentations by materials experts</b> Each material group is explained by experts, 15 min each: 1. Pirjo – Wood 2. Mette – Growing 3. Robert – Nano 4. Stefano – ICS	Sitting in [room name]	Connected to Zoom main room	
10:45 - 10:50	<b>WRAP - UP</b> Explanation about next activity	Sitting in [room name]	Connected to Zoom main room	
10:50-11:00	<b>Break</b>			
11:00 - 12:00	<b>Design Thinking I: Discover &amp; Define opportunities</b>			
11:00 - 11:10 (10 min)	<b>Make working groups</b> Introduction to Design Thinking I Toolkit explanation recap + put toolkit on the tables Divide participants online and on-site in groups	1. Sitting around group tables 2. Participants select group table	1. Connected to Zoom main room 2. Connected to Zoom group (breakout room) they have chosen	1. Connected to Zoom main room 2. Connected to Zoom specific group (breakout room)
11:10 - 11:40 (30 min)	<b>Discover Toolkit with your teammates</b> Participants discover the toolkit guided by expert explanations	Sitting on group tables experimenting with the physical toolkit	Connected to Zoom specific group (breakout room) experimenting with digital toolkit	Connected to Zoom specific group solving doubts 11:10 - 11:25 (15') Experts attend onsite participants 11:25 - 11:40 (15') Experts attend online participants. <sup>2</sup>
11:40 - 12:00 (20 min)	<b>Define opportunities</b> Generate ideas 8' Share ideas 8' Vote ideas 4'	Sitting on group tables working on A3 canvases and post-its.	Connected to Zoom specific group (breakout room) working on digital Jamboard	11:40-11:50 (10') Experts attend onsite participants 11:50-12:00 (10') Experts attend online participants <sup>1</sup>
12:00-12:01 (1 min)	<b>WRAP UP</b> Explanation about next activity by the facilitators in each table	Sitting on group tables	Connected to Zoom specific group (breakout room) working on digital Jamboard	Connected to Zoom specific group (breakout room)
12:01 - 12:45	<b>Design Thinking II: Develop &amp; Deliver solutions</b>			
12:01 - 12:45 (45 min)	<b>Develop &amp; Deliver</b> Develop ideas and build prototypes Prepare presentations (2-3 min)	Working on groups to build a prototype and prepare a presentation	Connected to Zoom specific group (breakout room) working on Jamboard to develop a solution through collage / sketches and prepare a presentation (choose 1 participant to present)	12.00 - 12.20 h (20 min) Experts attend on-site participants 12.20 - 12.40 (20 min) Experts attend online participants <sup>1</sup>
12:45 - 13:00	<b>Break</b>			
13:00-13:15 (15 min)	<b>Presentations</b> 2-3 minutes teams presentation + 1 minute feedback from the expert assigned: 1. Onsite Wood 2. Online Wood 3. Onsite Growing 4. Online Growing 5. Onsite Nano 6. Online Nano 7. Onsite ICS 8. Online ICS	Presenting for the panel (mobile cam used to show results online). In main room, so everyone can see experts and online participants' presentations.	Presenting by teams on the Zoom main room	Connected to Zoom main room Give feedback of 1 minute to their assigned teams.
13:15-13:30	<b>Evaluation &amp; Manifesto</b> Fill evaluation form Fill manifesto form	They fill the evaluation form and the manifesto form from their own smartphones / laptop		Experts can leave the room
13:30	<b>End</b> Participants leave the room	-	-	-

<sup>2</sup> Note: groups with uneven distribution can be managed together (e.g. 1 online and 3 on-site; 1 on-site and 3 online)

## 6.2 TRANSLATED COMMENTS FROM WORKSHOP EVALUATIONS

### 6.2.1 COMMENTS AND SUGGESTIONS REGARDING THE VIDEOS

**Sweden:**

- One video was very long in relation to the others.
- Longer movies and more powerpoint images
- Very varying quality of videos and language. Felt a bit unconcrete [sic] (indistinct?)
- It felt like a bit too high level for me, perhaps make it more basic, as entry level material.
- Sometimes difficult to understand english. Use more visuals in presentations. Wood based was made more clear during the workshop.
- Different level of presentations. Should have been more about the subject - already now one could get inspiration about the materials.
- It was difficult to follow and get an overview.
- I already had quite a lot of insight, so for me it was mostly repetition. Others might feel differently.
- I thought it was good to come prepared, you already had your mind set and it was easier to absorb the lectures.
- I didn't score low, but I think it could have been exciting to get the chance to talk to the researchers more, and reduce the task to one step.

**Spain 1, 2 & Italy:** No comments

### 6.2.2 COMMENTS AND SUGGESTIONS ON THE PRESENTATIONS

**Sweden**

- Fun to hear experts from different areas.
- Longer lectures.
- A pity with so little time. Could be somewhat longer. I was lacking information about today's status and how commercial the products are. To what scale are they used today? [TRL?]
- Some things were easy to follow, e.g. growing materials & wood, they were good and clearly presented. Nano was very difficult to understand. It was not at my level, but it also was not my area of interest.
- A bit difficult to get a feel for the materials when it is done digitally.
- Very good if it was presented how commercial the material is [TRL].
- Want the powerpoints printed beforehand to make notes.
- The presentations supported by powerpoints were the best!
- Nano was difficult to follow. Powerpoints presented online are difficult to make inspiring.

**Spain 1**

- Congratulate them for their initiative and thank them for their availability.
- The nanomaterials presentation was difficult to follow.
- I would have liked a slightly slower pace to better familiarize myself with the materials in the toolkit.

**Italy**

- everything has been presented and proposed in an interesting way even for people with not knowledge on the topics
- It would be very useful to have the experts' presentations to read them carefully in order to understand better what the experts explained
- "Everything clearly exposed, even the analogue material and the physical samples that cannot be missing in these CMF (Colors, Materials, Finishes) events. Would have been nice to have one kit for each of the participants and to be able to take them (home)."
- Thank You very much for the coming back to the social reality

### 6.2.3 COMMENTS AND SUGGESTIONS ON THE MATERIAL TOOLKITS?

#### Sweden

- I did not get a pdf about the materials
- Some more information about what the actual material was, maybe?
- Some more specific background about how it is produced would be nice to get a better overview.
- Too little time to absorb everything, which you want, and then it will be more difficult to understand them all. And since it is technical english, more time is needed.
- Great!
- Nice if you could get the material pdf before the session.
- They are [the information is] clear and good!
- Difficult to absorb without being there.
- They were really good and well sectioned properties (applying etc)
- I would like more examples of use and manufacturing in the sheets, to get an understanding of how to find right [material?] and apply it in your company.

#### Spain 1

- There is a lack of information on compostability times, calculation parameters and a comparison between materials would be interesting to better understand the whole. There is a material in the wood area of which the experts have no information, it would be interesting to look for a substitute that can be better understood and discussed.
- It would have been great to look at all the materials and maybe make transversal material research :)
- In some materials it is not very clear to me how it has been applied; it would be easier with an explanatory text to better understand it.
- No degradation time appears for materials.
- I think it would be useful to add as a data the number of years in which the biodegradability of the product occurs (even approximate).
- I was trying to compare the materials, but it was difficult without being able to download the toolkits
- I wish I could see the materials up close to touch them. As an introduction or while the experts speak, thus being able to have a contact with the entire sample, while these are discussed for the different applications. I also think that the interaction and a round of questions to the experts about the sample book would have been enriching.
- Perhaps there is a lack of information on temperatures for obtaining materials in the manufacturing process, however, the expert clarified our doubts.
- The materials used for the toolkit prototype are not sustainables. The use of foam (porexpan) por e.g.
- It would be nice that the book indicates the name of the materials used in its fabrication.
- The data sheets of the toolkits easily fell out from the books. They could be mixed and lost easily.

#### Spain 2

- The toolkit is very interesting, a simple work tool that has several levels, fast and easy.
- Physical properties are misleading.
- For the next toolkit I recommend that it be book type. Since the chips get messy and lost. It also helps to maintain mental order on which sheet you have read and which not, and not to mix the toolkits when you are in the workshop. The foam board part with the material is OK. A 'FUN FACT' would help to remember the material :)

#### Italy

- online I missed a reference to help my group during the brainstorming phase. actually not having the material samples available to be able to understand its potential is rather limiting
- Very interesting and user-friendly
- The toolkits were well made, too bad they were scarce and not storable
- A special experience of coworking and ideas development

## 6.2.4 COMMENTS AND SUGGESTIONS ON THE WORKSHOP FORMAT

### Sweden

- Good job dividing on location/online! However, there was some uncertainty about participating online with some wait. Since you are not on location and can't interact, it could be worth adding some dopamine moments for online focus. :)
- It was a bit difficult in the beginning, you felt a bit lonely as an online participant. But it felt good when you were divided into one room and had to discuss with others. Had been good with prepared discussion rooms until next time and a little easier cooperation.
- Difficult to get a simple overview and access (feel and squeeze) online
- A little too wide [scattered?] in the sense. It is mostly that you scratch the surface
- Shorten the workshop and maybe have access to do simple tests with the materials in question. I understand that they are expensive, but it would have been exciting.
- Maybe better with 3 people per group than 2 people.
- Since no testing was included, the research and understanding of all materials became a bit flat, but otherwise good.
- Stressful, but I know that it is good to squeeze out many ideas in a short time, developing. Great fun to meet people from different industries with different experiences and ideas.
- Difficult to access the researchers ... queue. Hope they can be contacted afterwards.
- The participants online took up a lot of queuing so it was difficult to get the opportunity to talk to the researchers. In general, it got a little confusing to have the workshop live with participants on the link.
- Lack of time - maybe do it in 2 days instead? Divide the events for participants online and on site? It felt like the participants online took almost all the time with the researchers.
- A little more time would have been good, especially to have more time to talk to the researchers
- Shorten the workshop and maybe have access to make simple tests with the materials. I understand they are expensive, but that would have been exciting!
- Difficult to get a simple overview and access (touch, feel) online.

### Spain 1

- I wish I could participate in all the different groups to create ideas
- Too short!
- Maybe a little more detail on clustered processes
- I found it very enriching and adjusted in time, but very good as an introduction. To suggest, I would have liked to investigate a little more in the application of the different materials and work on projects in which they interact or merge, instead of categorizing them by groups or sectors. I loved it.
- It was great to share time with an expert from the area and hear their feedback also for the areas where I was working!

### Spain 2

- It is a short time workshop to investigate feasible proposals.
- Sometimes it is difficult to come to a plausible conclusion. It is needed to emphasize about material manufacturing processes.

### Italy

- The organization of the workshop needs some revision from the point of view of the connection and the management of the meeting remotely, but the exposure of the contents and the alternation between the different speakers worked well.
- there was no valid intermediary for online participants, also due to audio problems it was impossible to listen only to those present in your group ...
- the online participation to workshop was not easy, but since the situation it has been a positive experience anyway
- Very stimulating
- Brainstorming interesting
- Some questions have remained open and unanswered, and at times it seems that a closer comparison with industries is missing upstream to understand the minimum requirements that a material must have to work in certain sectors and also the format in which it must be produced to be usable. .
- Thank You for expert contribute



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