# KATCH-e

# WP3: REPORT ON STAKEHOLDER WORKSHOP II

EDITOR: AALBORG UNIVERSITY, DENMARK

WITH INPUT FROM AIE, TUV, AAU, LNEG, UA, ITC, UJI, PROSPEKTIKER

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# EXECUTIVE SUMMARY

The second of the planned three KATCHe stakeholder workshops were held in all four countries in in the period December 2018 – February 2019 with a total of 150 participants representing primarily the main KATCHe project target groups: Higher education, Business community and Knowledge centres. This is well above the overall goals set for the project – 25 participants per workshop.

The workshop served several purposes:

- Presenting KATCH_e outcomes and inviting or confirming potential members for the national stakeholder network and future cooperation
- Testing and having feedback on selected KATCH_e materials
- Actively engaging students before and during the workshop

These purposes were covered in all the workshops, including also some additional, national topics. An overview of the focus and organization of the workshops is shown below.

|  | Austria | Denmark | Portugal | Spain |
|---|---|---|---|---|
| Date | 27th Feb. 2019 | 29th Jan. 2019 | 7th Feb. 2019 | 11th Dec. 2018 |
| Duration | Full day | Half day | Half day | Half day |
| Location | Graz | Copenhagen | Lisbon | Bilbao |
| Host | External location: Hotel Daniel, Circular Futures | Aalborg University | LNEG - National Laboratory of Energy and Geology | Basque Ecodesing Hub |
| Organizer(s) | Austrian Institute of Ecology, Technical University of Vienna, Circular Futures | Aalborg University; The Danish Society of Engineers | LNEG and University of Aveiro | ITC; Prospektiker; University Jaume I |
| Total participants | 43 | 41 | 39 | 27 |

| Workshop themes | Intro to project and students work, best-practice, Testing three KATCH_e tools, site visit | Introduction to CE and to KATCH_e. Testing three KATCHe tools; Engaging students | Testing four KATCH_e tools with students, professors, companies and other organizations | Introduction on design strategies and the KATCH_e project. Test of KATCH UP game. Discussion. |
|---|---|---|---|---|

Overview of time, place, organization and themes for the workshops.

The Spanish workshop in December 2018 was organized for a group of master students to test and evaluate on one of the tools – the KATCH Up! game. Hereby, students were actively involved and the feedback was used to prepare an improved version of the tool for testing on the other national workshops.

In Austria, Denmark and Portugal, the workshops were organised together with organizations outside the consortium. This is probably one of the reasons for the large number of participants. Moreover, it supported the dissemination of knowledge and laid the foundation for future cooperation, also after the project period.

The involvement of students were successful in many ways. Firstly, involving them directly in testing and evaluating the tools brings valuable understanding on how to best adapt the KATCH_e materials for student learning purposes. Secondly, during the group work, students joined mixed groups and were thus involved in debating and learning with people from different organizations. Moreover, some students had a chance to present and discuss their findings with an audience outside academia. Finally, in some cases, students were asked to report from the group discussions to have a qualified feedback from during the testing, as a supplement to the evaluation and feedback after the testing of the tools.

The KATCH Up! tools was tested in all four countries – and much of the feedback focused on the same issues which will guide the development of the final version of the tool.

The tools CE Strategist and CE Designer were tested in three countries, but in different versions since the digital ones were not ready for test at the time. The feedback on these tools showed that people found them interesting and potentially valuable, but also that we need to look into how we can support people in using the tools and in understanding the outcomes.

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The CE Journey tool was tested in one country, also bringing valuable feedback to the tool developers.

From the organization of the workshops, some lessons can be learned for how to organize such kind of workshops with a high quality and outcome for the participants:

- Involving people from both academia and business world led to interesting perspectives and knowledge sharing, both conceptual and more practical

- Testing of the tools became more successful when there are good cases for the participants to work on

- Even if the tools ideally should be self-explaining, the participants' outcome was better when facilitators supported the group work.

- Time is an issue. More time could have given even better outcomes for the participants. However, it might still be better to have people wanting more time, than people being bored.

- Open workshops with participants from different types of organizations and different previous knowledge on CE can create interesting discussions. However, it is important that the facilitators are observant and ready to actively support groups with a limited knowledge on CE and sustainability.

Finally, the workshops resulted in growing and developing the national stakeholder network. By March 2019, the number of stakeholders in the network has reached a total of 435, which is ten times higher than the original target.

# 1 TIME, PLACE AND ORGANIZATION

The stakeholder workshops took place from December 2018 until February 2019 in all four countries. On the 27th February in Austria, the 30th January in Denmark, the 7th February in Portugal, and on the 11th December 2018 in Spain. The workshops were promoted through a variety of channels, typically linked to the organizing organizations and the co-organizers, but also through other internet media and through personal invitation.

The Austrian workshop was targeted towards the construction and furniture sector. It was organized by the Austrian Institute of Ecology and Technical University of Vienna together with Circular Futures (Circular Economy Platform Austria) and BauKarussell, and took place at Hotel Daniel, Graz (Styria). The Danish workshop, a half-day event, open to all, with a focus on people interested in teaching and learning circular economy, was organized by Aalborg University in cooperation with the Danish Society of Engineers.

The half-day workshop reaching design and management students, professors, companies and other stakeholders in Portugal took place at LNEG and was organized by LNEG with the collaboration of Aveiro University.

Finally, the half-day Spanish workshop was organized by ITC, Prospektiker and Universitat Jaume I, and hosted by the Basque Ecodesign Hub.

The half-day workshops were chosen from an assessment that it would be easier to attract participants, if they were not to spend a full day plus travel-time. In the case of Austria, a full day program was chosen because of the wide range of inputs organized with the partner, and also including a site visit.

# 2 PARTICIPANTS

All the workshops had the main KATCH_e categories as primary target groups, that is Business, Higher Education and Knowledge Centers, but the workshops were open to other categories as well. The total number of participants were 150, with 43 in Austria, 41 in Denmark, 39 in Portugal and 27 in Spain. Due to the European GDPR requirements, not

all participants informed about their organizational relations, and thus we cannot distribute the participants quantitatively on the different target groups.

In For Denmark and Austria, we know that the following stakeholder categories were represented at the workshop: Higher Education, Business community; Associations and knowledge centers, NGO/Civil society, Public authorities.

In Portugal the session had representants from Higher Education (students and professors), companies, associations, NGO's, and public authorities.

In Spain, the participants were 19 master students, mainly engineers, from Ecodesign course, 1 professor and 7 project technicians (Spanish KATCH_e members).

## 3 PURPOSE, AGENDA AND MAIN RESULTS

The stakeholder workshop II served the following purposes:

- Presenting KATCH_e outcomes and inviting or confirming potential members for the national stakeholder network and future cooperation
- Testing and having feedback on selected KATCH_e materials
- Actively engaging students before and during the workshop

These purposes were covered in all the workshops, including also some additional, national topics. For example, the Austrian workshop also aimed at introducing recent developments on EU and national level and best-practices as a guidance towards more circular solutions.

### 3.1 National focus on the workshops

*Austria*

The Austrian workshop focused on the challenge of implementing circular design and business models and showed best-practice-examples. A particular focus on selective dismantling as a business model was also set. The agenda consisted of five parts:

1. Two talks about the political and legal framework at EU level and achievement of objectives in Austria, held by Jean-Pierre Schweitzer of the European Environmental Bureau and Ingrid Winter, chief of the Styrian government's waste department, followed by a Q&A.
2. Three talks about the obstacles and opportunities of circularity and short presentation of the CE Designer and CE Strategist tools, held by Rainer Pamminger

and Stephan Schmidt of the Technical University of Vienna and Thomas Romm of BauKarussell, followed by a Q&A.

3. Three "good practice" presentations of Austrian businesses with regards to circularity, followed by a Q&A:

    a. Internorm: Presentations on the "Window of the future", Johann Brandstetter, the CEO introduced environmental measures taken in production and Raphael Kern, a diploma student (Mechanical Engineering) from the Technical University of Vienna presented the preliminary results on circular design options resulting from the collaboration with Internorm for his thesis

    b. Doka: Presentation on "Business models for formwork construction" by Thomas Meinschad, New Materials and Physics Research and KATCH_e partner. The presentation showed the close link between product design and business model.

    c. Lukas Lang Building Technologies: Presentation on "Modular Building Systems" in timber construction by Alexander Szymoniuk, Sales Manager.

*Lunch Break*

4. Workshops and discourse rooms on how to align one's work with circular economy - four workshops on different topics were held simulanously:

    a. Circular Design of carpet flooring, utilizing the CE Designer tool, moderated by Rainer Pamminger.

    b. Circular Business models for windows, utilizing the Business Model Canvas, moderated by Stephan Schmidt.

    c. The KATCH_Up! game with a modular building system as the problem context, moderated by Maria Kalleitner-Huber.

    d. Business models for selective dismantling, moderated by Markus Meissner, Matthias Neitsch and Thomas Romm.

5. Site visit of the Reininghausgründe, showed a practical example of a business model for onsite reuse and recycling of building materials, by Thomas Romm and Markus Meissner

The combination of the talks, workshops/discussions and the site visit resulted in an informative, diverse and motivating program which was well received by the participants and resulted in lively discussions and active participation. Nevertheless, the time avaliable for the workshops and discourse rooms was too short for a comprehensive presentation of and feedback on the different KATCH_e tools.

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| 9:30 – 10:00 Registration, **10:00-10:05 Welcome (Julika Dittrich, Circular Futures)** | |
|---|---|
| **10:05-10:45: Block 1 – Legal requirements and status** | |
| Targets and requirements on EU level | Jean-Pierre Schweitzer, Product Policy and Circular Economy Officer, (EEB) |
| Framwork conditions and best practices in Styria | Ingrid Winter, waste management & sustainability department, (Styria) |
| **10:45-11:40:  Block 2 - Challenges and potentials of CE** | |
| Circular Design and capturing of values along the life cycle – the value hill modell | Rainer Pamminger (TU Vienna, KATCH_e) |
| Innovative Business Models – creating of added values in a new manner | Stephan Schmidt (TU Vienna, KATCH_e) |
| Re-Use - Baukarussell as part of a circular building process | Thomas Romm, Architect, Romm / Mischek ZT) |
| 11:40-12:00 Introduction of WS groups , Maria Kalleitner-Huber, Austrian Institute of Ecology, KATCH_e <br> 12:00 – 12:45 Lunchbreak | |
| **12:45-13:40 Block 3 - Challenges & activities from Austrian companies** | |
| Introduction to Internorm and environmental protection activities | Johann Brandstetter, CEO Internorm Fenster GmbH |
| Window of the future, application of KATCH_e modules and tools | Raphael Kern, Student at TU Vienna |
| New Business Models in formwork construction | Thomas Meinschad, New Materials and Physics Research, doka GmbH, KATCH_e |
| Modular building systems | Alexander Szymoniuk, Sales Manager, Lukas Lang Building Technologies |
| **13:40-14:45 Block 4 – Worshop groups & Discussion** Maria Kalleitner-Huber (KATCH_e) | |
| I Circular Desgin: carpet flooring | Rainer Pamminger |
| II Business Models: windows | Stephan Schmidt |
| III KATCH_up!: modular building systems | Maria Kalleitner-Huber |
| IV Business model selective dismantling | Markus Meissner |
| **14:45-17:00 Block 5 – Introduction and site visit of q5, Reininghausgründe Graz** | |
| Thomas Romm, architect Romm / Mischek ZT <br> Birgit Leinich, representative of the builder Österreichisches Siedlungswerk <br> Markus Meissner, Austrian Institute of Ecology/pulswerk GmbH <br> Visit of q5, which is a big project of the new developing Reininhausgründe in Graz | |

Photos from the workshop:

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In Denmark, the title of the workshop was "How do you learn to work professionally with circular economy?". The programme was organized around three elements:

1. Presentation of KATCH_e modules and tools, "The 10 Essentials of working with Circular Economy", and examples on students' use of the materials

2. Hands-on testing of three KATCHe tools – the KATCH UP! board game and adapted versions of the CE Strategist and the CE Designer

3. Feedback and discussion of potentials for future cooperation

*Ad 1)* Since the participants had very different background knowledge on CE, the workshop started with a short introduction to the concept, followed by some discussion. Next element was a brief presentation of the KATCH_e modules and tools, including examples on, how students during projects, internships and in more traditional lectures had worked with the material. Finally, the organizers presented the 10 Essentials of CE, (English version is in the box).

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**The Ten Essentials of Circular Economy**

1. Think circularity already in the design phase of products and business models

2. Think in functionality instead of products

3. Analyse where value is created and destroyed, to understand how it can be captured

4. Any circular solution should also be sustainable

5. Assess the consequences and relevance of your solutions from a life cycle perspective to avoid moving problems, or creating new ones

6. Involve the stakeholders along the value chain in developing new solutions

7. Adopt a stewardship role and lead the transition to a circular economy by example

8. Understand which new, or changed, practices are needed to make your circular solution work

9. Make the circular solutions attractive for the users and be a part of the solution, not the problem

10. Consider if local social value can be applied as a part of reuse and refurbishment

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*Ad 2)* For the hands-on session, the participants formed 8 groups. 4 of them played the KATCH UP! board game; 2 groups discussed circular business strategies related to the CE Strategist tool, and 2 groups worked with a combination of The 10 Essentials of CE and CE

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design strategies. After the group work, the outcomes were briefly presented in plenum to share the experiences.

*Ad 3)* In general, the feedback from the participants was positive, and working with the tools clearly gave rise to vivid discussions in the groups. Some groups, however, struglled a bit to make sense of the materials and would have benefitted from having more knowledge on CE before joining the workshop.

17 people filled in an evaluation scheme after the workshop, with an average score of 8,9 out of 10.

The specific feedback on the tools is presented in section 3.3.

Photos from the workshop:
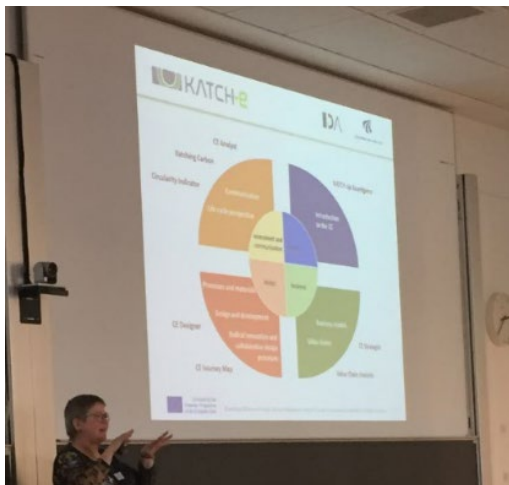
*Portugal*

In Portugal, the title of the workshop was "KATCH_e  Second National Workshop - Tools for the circular economy". The programme was organized around three elements:

1. Presentation and dissemination of KATCH_e project and the four tools developed in the project

2. Hands-on testing of four KATCH_e tools – the KATCH UP! board game, CE Strategist,  CE Designer and the CE Journey

3. Feedback and discussion.

*Ad 1)* The workshop started with a short introduction of the project, followed by a presentation of the KATCH_e tools to be explored within the workshop, KATCH Up! board Game, CE Designer, CE strategist and CE journey.

*Ad 2)* For the exploration of the tools, the group was divided in 6 multidisciplinary sub-groups.

Before the workshop, the organizers asked to the company representatives to supply business challenges that could be used as the basis to apply the tools. From the challenges sent, the organizers selected 3 challenges with higher didactic potential to apply the KATCH_e tools.

The challenges were the following:

Challenge 1 -  Carpets for events. In Europe only 3% of the carpets used in events are recycled. The remaining 97% have as final destination landfill or incineration. The

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challenge was to identify opportunities to add value to these products using the KATCH_e tools.

Challenge 2 – FINSA produces MDF boards for furniture and construction. With time, the appearance of the panels change in aesthetical terms, and currently, after use, the destination of such product is to produce energy. The company seek for ideas to add value to used panels and the identification for reuse of the material.

Challenge 3 – Alma Gémea is a product developed by Amorim composed by a set of utilitary tableware products in cork and ceramics. The challenge in this product is to internalize the molding process of cork, to identify substitute materials for the ceramic components and improve the cork composite.

After the presentation of the challenges, each group, moderated by a KATCH_e partner, explored the tool to identify improvement options.

*Ad 3)* The session ended with a brief presentation of the results of the works developed in each groups, and a short debate about the results attained and the experience in using the                                                                                          tool.


Photos from the workshop:

*Spain*

Three specific objectives were defined:

- To diseminate the progress made so far in the KATCH-e project, in terms of the type of training materials developed.

- To test with the students one of the tools developed - the "KATCH Up!" boardgame. This game makes the students reflect on what the application of the circular economy may imply in a company, from different perspectives (circular design strategies, business models, market launch, manufacturing ideas...).

- After testing the game, a debate was organised to gather information on the skills with positive impact on the students and on aspects of the game that can be improved.

Since the Spanish workshop took place in December 2018, the feedback was used to create a new version of the game. The new version was tested on the other national workshops.

At the beginning we did a brief presentation of the workshop and an introduction to design strategies and to the KATCH_e project. After these activities we presented the KATCH Up! game and later on, we grouped the attendants in small multidisciplinary groups (based on their profiles), in order to ensure the fruitfulness of the activity and stimulate the creativity in team.

Workshop participants worked to create, develop and present an idea on real problems, including the circular economy strategies to solve them, finding a business idea to the main problem of each group case.

After the final presentation from each group, every project was scored by participants, including others groups, professors and technicians. We used a *likert scale* (1-5) where 1 was less and 5 more important to rate the ideas presented by the groups. The final result showed a winner with the best business model with the circular value idea integrated.

At the end of the game was individually distributed a questionnaire to give feedback on the game and each response analysis can be found in Chapter 3.2. Two open questions were also asked, adding them to the KATCHe evaluation questionnaire for trainees, in order to generate the debate. Therefore, after filling in the questionnaire, the students were openly talking about their opinion about the game and giving feedback on how to improve it, following the next questions:

- Write 3 sentences with the things that you liked the most
- Write 3 sentences with the things you missed

The main feedback that the students gave was:

- Good to work in groups
- Surprised as too how easily ideas were flowing, very innovative value ideas
- Possibility of using in real business case
- Doubts about the feasibility of the ideas
- Could be extrapolated to other areas, such as support for other tools
- Very good to organize information to get innovative ideas
- Calling it a game is not accurate, it is more a well- structured methodology
- There is no winner within the group
- After step 4 it is difficult to follow, we continue talking and working but not so much about the strategies
- Language barrier: the English is difficult
- Will be better to have more time

On the other hand, the main feedback given by the teacher was:

- Very useful for her
- Good to take into account the business challenge and the market
- Our students often forget the clients, the target group
- Loose too much time contextualising, then the students miss the importance of the design strategies
- The cards are too descriptive, too much reading
- Sometimes not realistic ideas

Photos from the workshop:

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## 3.2 Involvement of students

*Austria*

One of the good practice presentations (Internorm) was held by Raphael Kern, a mechanical engineering diploma student from the Technical University of Vienna. He is currently working on his thesis on circular solutions for windows in cooperation with Internorm, applying KATCH_e materials and tools.

His proposition, a refinement of the window subframe enabling the destruction-free removal of the entire window, was discussed in the workshop group 2 (Business Models), where it was well received. His idea would offer different utilization possibilities for the users, particularly for shorter utilization periods.

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Hannah Hofbauer, student of Environmental- and Resource Management at the University of Life Science in Vienna, was involved in the preparation of the workshop session for the testing of the KATCH_up game. She collected the reactions and inputs of the participants and reflected on the game flow including feedback from applying the game.

*Denmark*

During the Autumn of 2018, students used and tested selected parts of the KATCH_e material – some in a classic lecture setting, some in projects, and one student in internship. Examples were presented at the workshop.

Moreover, students from Aalborg University were invited to join the workshop and thus took part in the hands-on session where the tools were tested. The students were asked to take notes during the group discussions to improve the evaluation of the tools and their accessibility, relevance, etc. It was a valuable part of the feedback proces.

Finally, also students from other universities joined the workshop and they provided feedback on if and how the KATCH_e materals could be of use in their own learning environment.

Summing up, students in general find the KATCH_e material relevant and useful. However, some parts are not easy to use, and it takes time and effort to familiarize oneself with CE and the needed analyses.

*Portugal*

Within the training activities carried out in Portugal, the HE students and trainees from companies and other institutions had had the opportunity to test the tools and theoretical modules. These students and trainees which had been involved in previous KATCH_e training and education were invited to participate and brought their experiences to support the exploitation of the tools in the workshop. The mix of students with experience in the tools, students without knowledge about the tools, professors, company representatives and other stakeholders enriched the groups which resulted in a sucessfull experience and promotion of the KATCH_e resources widely.

The feedback from the students was very useful to understand how to demonstrate the application of the tools.

*Spain*

The workshop was organized for a group of master students and their professor. The participants did not have prior information about the project or its materials. The workshop did not integrate any previous project in which the students had worked before.

## 3.3 Testing and feedback on the KATCHe materials

*Austria*

The Austrian workshop tested the following three tools:

a. CE Designer
b. CE Strategist – Business Model Canvas
c. KATCH Up! game

**CE Designer – Design Cards:**

The task of group 1 was to improve the properties of a tufted carpet in the foyer of a supermarket in accordance with circular design principles. For this task, design cards from the CE Designer tool were utilized. The group analysed whether the statements on these cards were true for the product. If this was the case, the design strategy indicated on the back of the card was applied for further improvements of the product. Each participant received approximately two cards.

Firstly, the "design for resource efficiency" strategy was discussed on the basis of the following ideas: Use of renewable materials (e.g. hemp), recyclability – materials are not separable at the moment - and improvements targeting a one-component-strategy.

The second topic was design for product-oriented services. It was concluded that for this strategy, the manufacturer would have to offer a leasing model and thus be responsible for repair and replacement, which was not considered to be realistic. Mr. Pamminger then presented the example of Desso, a company who offers such a leasing model for carpet tiles, which can be exchanged quickly if repairs are necessary. They use high-end materials for their carpets which are recycled and then re-used for yarn production after utilization.

There was an ongoing detailed discussion on the environmental impacts of materials and the different circular strategies, especially the differences between reuse, recycling, remanufacturing and landfill.

In conclusion, all relevant improvements concerning design and business models could be derived from the cards. The participants of group 1 felt that the cards were relevant and useful to come up with ideas.

**CE Strategist – Business Model Canvas:**

In this group, the potential of eleven pre-defined circular business models was discussed. As the CEO and another employee of Internorm participated in the group, direct

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practical relevance could be integrated and potentials could be discussed based on real-world business practices.

Thanks to the exeptionally high knowledge on production processes of the participants, the group was able to analyze the practicality of the proposed business models. To set the scene and to call the elements of the business models to mind, the Business Model Canvas was briefly presented.

Product-oriented services and elongation of the life span were regarded as useful for windows, especially for bulk purchasers. Also, wooden windows in particular are often not maintained adequatly, hence an extended manufacturer guarantee was considered to be suitable.

With regards to product design, the proposition of Raphael Kern was discussed. Mr. Kern is studying mechanical engineering at VUT and is currently working on his diploma thesis dedicated to product development and circular design. He is working on the elaboration for circular solutions for windows and applying KATCH_e materials and tools and presented the current status of his works in the morning.

His proposition, a refinement of the window subframe enabling the destruction-free removal of the entire window, was well received by the group and would offer different utilization possiblilities, particularily for shorter utilization periods.

Another important discussion point were re-use possibilities for the window glasses, which are the most valuable part of the window. Currently, they are not re-used, but rather downcycled at most. In doing so, the application as glazing for greenhouses was concluded to be quite realistic. To realize such a business model, the joining technique of the windows would have to be adapted.

As previous work has been done within the cooperation of TUV and Internorm, the workshop could show what results for what challenges are possible to achieve with applying KATCH_e tools.

**KATCH Up! Board game:**

The group chose a suggested **individual problem context** (transfer of the principles of modular wooden construction to massive construction inspired by one of the presented best practice examples) which was relevant to the participants. Empty Problem Context Cards/templates were prepared beforehand and filled in during the game. The filled in problem context cards has been considered too complex for the workshop setting beforehand, they have been used as orientation to fill in an empty problem context card with the chosen challenge.

Thanks to the professional background of the participants, relatively little instruction was necessary. The given and clear problem context also helped to understand, select and

apply suitable strategy cards and develop possible solutions for a more circular design in massive construction and the development of possible business strategies.

Due to time constraint not all materials have been used like Business Model Canvas or Elevator Pitch. The moderator suggested at the beginning to have a common discussion instead of competing groups hence there was no elevator pitch at the end.

**The templates for the business ideas** seemed to work well and they were even drawn on, but no specific feedback was given on them. In general, the group thought that the board game was a good tool for creative thinking, finding new solutions and exchanging ideas within the group. The time frame was considered too short for the given tasks.

In this group, participants had a background in architecture, public procurement, urban development, construction supervision, industrial ecology and resource management. They found the game stimulating and expedient but too ambitious for the given time. The moderator has found the participant's professional background very helpful, without which a lot more instruction would have been necessary to obtain such comprehensive results.

Some participants found the **board** and the CE Design Strategy **cards** too loaded with text, at least for the short time frame. There was also some confusion about the difference of the CE Design Strategy cards and the CE Business Strategy cards, in particular because of the same color. One participant also suggested giving these two sets of cards different numbers on the board.
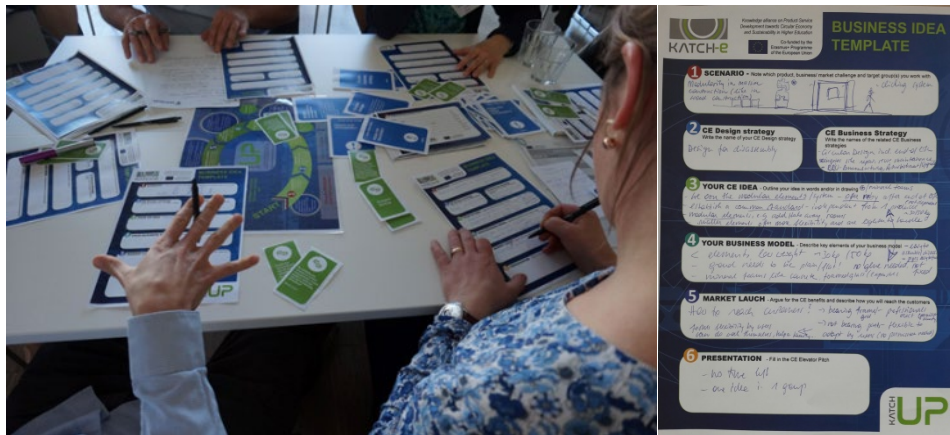


In the fourth group the participants discussed about the **selective dismantling as a business model.** Markus Meissner lead the discussion together with Matthias Neitsch (RepaNet), Thomas Romm. The cooperate in the BauKarussell project which is going to be developed further into a new business (model).

The day was finished by a nearby **visit at a construction site** (q5, part of Reininghausgründe Graz) which demonstrated the challenges and potentials of the on-site use of building materials and importance of new cooperations and partners in such a big endeavor.

*Denmark*

The Danish workshop tested the following three tools:

- KATCH Up game

- CE Strategist – Business Model Canvas

- CE Designer combined with The 10 Essentials

*Feedback on the KATCH Up! board game*

In general, people were positive about **the game board** – it is, however, (over?)loaded with information.

The not-so-familiar with CE seemed to be happy with the linear step-by-step approach. A few CE experts suggested a more flexible, network based board, where they could jump between the content of the steps, since the discussions by nature are iterative. For example, they started discussing content of steps 3 and 4, already on step 2.

The idea of randomly picking the cards and discuss from that, worked well. Some cards (see later) are better than others, and this fact influenced the success of the groups. Three groups got an idea rather quickly and thus ended the game within an hour. The last group had hard times to make sense of their problem context card and they didn't come to a result/output – but they still had relevant discussions.

Some issues came up on the visual relations between the cards and the board, especially on harmonizing the visual identity of the cards and the board. The players were confused about the relations and interaction of the CE Design Strategy cards and the CE Business Strategy cards. They suggested different coloring, and to call them 2A and 2B.

No comments on **the templates**, they were "simply" filled in. An analysis of what was written on the templates would probably give us a deeper understanding of the outcomes of playing the game. We also have people offering to take a closer look at the game and give feedback.

Another **idea for improvement** came up: On Step 1, when they have picked a problem context card, ask the players to discuss, what the functionality (and maybe also the

circular/sustainability problems?) of their product category is. This will prepare them to better understand the cards, they draw on Step 2.

One more question coming up: how is the game related/aligned with design thinking?

The major area for improvement seems to be the content and structure of **the cards**.

The Problem Context cards are too complicated and difficult to understand. Suggestions are to reduce the content to three elements:

1. Company challenge in one clear sentence

2. Product category: One concept/word, for example "office furniture"

3. User/target group: just a concept, it's fine to leave it open for the group to discuss and decide on

With this simplification, the cards could be of the same size as the step 2 cards.

The relations between the two types of cards on Step 2 are not clear to the players. It should be more explicit how the Business strategies depend on the Design strategy.

On the Design strategy cards, the criteria should come before you are asked to draw more cards. It is confusing to have to draw new cards before you even know what the first one is about.

The Divergent thinking cards were apparently not used – or not of use? People looked at them, and then put them back. It wasn't clear to us, whether they actually made use of the input given.

*Feedback on the CE Strategist/Business Model Canvas*

Since the CE Strategist tool is still under development, we developed a simplified version of a Business Model Canvas with examples on relevant CE and sustainability related questions to consider for five different CE business models. The participants got an empty Business Model Canvas for them to fill in for a given task which was: *Think of a traditional cot and develop a new circular and sustainable solution. Choose a Business Strategy and fill in the fields in the canvas with your reflections on how to realize the chosen strategy.*

During the test, we realized the following:

- The participants were not familiar with the Business Model Canvas (BMC), so we had to give a basic explanation of the canvas and how to work with it.

- It would have been better to develop a more thorough case about a cot producer to help them. They felt very much that they were just guessing an answer.

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- The role of the participants should be clearly stated (= the producer of the cot)

- Since the BMC is a recognized approach, the participants were a bit afraid of writing something wrong. It would be better to ask them to simply brainstorm. That was the intention, but apparently, it should be more clearly stated.

- Working with the BMC is quite abstract, if you are not familiar with it. From a learning perspective, we have to

- explain the canvas

- explain the different CE Business Strategies. For example, one of the groups mixed up the Long life strategy and the Life extension strategy, since they are both about prolonging the lifetime of a product

- explain the circularity influencers

- explain how each influencer comes into play/should be understood for each CE Business Strategy.

*Feedback on the CE Designer combined with The 10 Essentials*

As for the CE Strategist, the CE Designer was "only" accessible in a provisory version. Therefore, we asked the participants to work on a given task, combining design strategies with working with the 10 Essentials of CE.

The task was: *Choose a product, you want to redesign from a circularity perspective, for example a washing machine, a wheelchair for kids, or an office desk. Imagine that you are hired in as consultants for the producer of the chosen product. Your task is to develop a set of recommendations on, what the company should consider when developing the new, circular solution.*

*1. Discuss which circular design strategies, the company should work with, and briefly outline your circular solution.*

*2. Based on The 10 Essentials, for each of them, note 2-3 aspects or questions, the company should consider. You don't necessarily have the solution to your recommendation, for the time being it's good enough to raise the flag.*

To support the discussions, we gave the participants a description of The 10 Essentials including examples, and an overview of the design strategies related to Narrowing, Slowing and Closing the loops. Moreover, they had an A3 sheet with the 10 Essentials to fill in.

What we learned during the testing was:

- it would be better if the participants were also asked to consider the relevant consumer group/s, and maybe also the producer. Alternatively, a more developed case could be given to guide and focus the discussions.

- We had asked them to start considering relevant design strategies, but going through The 10 Essentials, more strategies became relevant. Therefore, it is probably better to let them base their work on the 10 Essentials, and then include design strategies when relevant.

- When The 10 Essentials were developed, they were set in random order, as we did not at that time think of using it as a tool. To do so, the order should be rearranged to better support a good flow in the discussions. For example looking into the functionality and the users before the design strategies.

- The 10 Essentials are also working on different levels of abstraction. Maybe that should be marked by colors, or in another way.

- That said, we think that The 10 Essentials actually can serve as a "tool" in the meaning "a systematic approach".

*Portugal*

In order to evaluate the results of the workshop and collect feedback form the test of the tools, LNEG developed an online form that was sent to all participants after the WS. The filling in of the form was a voluntary and anonymous process, which had the collaboration of 54% of the participants.

In general, the participants expressed that the tools are important in the support for the transition to circular economy.

Regarding the experience with the tools in the workshop, 40% of the respondents indicated that the quality is very high and 40% indicated high. The remaining 20% indicated that the quality was considered medium.

70% indicated that they foresee the use of the tools in the future, in training and education activities, to analyse processes, consulting and practical activities in companies.

### KATCH Up! board game

The tool was considered easy to understand as for the structure and the operation of the game. The explanations included in the game in the several step was also easy to perceive, however, the gaming experience could be improved. The gaming aspect is not very clear.  The graphic aspect of the game could be improved.

To facilitate the use of the game, perhaps a moderator with a deeper knowledge about the game and the several steps could be usefull.

The design strategy cards have included the relation with the business model cards, but this relation is not mentioned in the BM cards. This can be also included and the users can start with the design strategies, or with the business models cards, according with the specifics and objectives of the project

### CE Strategist

The tools applied in the workshop was a draft printed version, since the final version is being programed, and the excel version is not very apealing to be used in work groups in the workshop.

The group tested the tool based on the carpets challenge and the discussion and the results were very satisfatory. The feed-back collected was the following:

- Very useful to "discipline" innovators' minds and to organize the discussion
- It should include guidance on the order of filling in the Canvas
- It should include a roadmap to navigate the tool
- The assessment could be turned into an ideation game
- The tool should generate risk-based scenarios
- When users have many ideas after filling in the first page, there should be some guidance on how to choose the best one, e.g. through an impact/effort matrix

### CE Designer

In the workshop the tool used was a draft version in excel which was difficult to use, however the group was able to discuss about the contents and the usability of the strategies in the development of design projects. In general, all participants saw the feasibility of the tool, having in mind that the programmed version will be user friendly and the filling in process will be simplified.

Based on the strategies discussed, the group was able to identify several improvement options to meet the challenge and the results were very promising.

### CE Journey

The CE Journey tool was tested with two groups of about 6 participants each.

Both groups worked with challenges proposed by the companies, the Alma Gémea product line, and the valorization of MDF boards.

After testing the tool with both groups, we have the following conclusions:

- In a general way, participants where satisfied with the workshop, in terms of meeting expectations and organizations, rating their participation as Good

- Some participants thought there was not enough time to apply the tool to the given challenges;

- All participants agreed that the tool is applicable to real cases in companies;

- Some remarks where made regarding simplicity and easyness to understand the results of the tool, something to consider along with other conclusions;

- The creation of groups with participants from different backgrounds was fruitful for the discussion;

- Because it was not possible to apply the tool in its entirety, there was some difficulty in stabilizing a scenario of analysis before proceeding to the mapping of the journey. On this, a possible solution may be to integrate the initial analysis directly into the Canvas;

- Based on the answers received the conclusion drawn is that it is necessary to determine a minimum time of application of the tool in order to achieve more objective results. Reducing application time influences the quality of discussion and results.

*Spain*

In the Spanish workshop the KATCH Up game was tested. The results obtained with the questionnaires were as follow:

| Is the tool intuitive and easy to understand and use? | Repetition of answers | Is the tool easy to apply to real practical cases? | Repetition of answers |
|---|---|---|---|
| A little messy at first. Difficult to assimilate the information. | 9 | A good method to facilitate the product design and companies creative process. | 2 |
| We have not used the tool as such to play. | 1 | It would be good if it could be applied to other sectors of the industry. | 1 |
| From step 4 we have not understood the game. | 1 | It depends a lot on the company, it should fit the characteristics of the company. | 1 |
| The cards define the context very well. | 1 | A real case can be complex to develop. | 1 |
| It would be more real if the context were studied / analysed by the players. | 1 | The tool allows you to collect ideas and guide them because it establishes the limits. | 2 |
| It would be very good a guide of how to play the cards to facilitate the process. | 1 | It could be applied to real cases to see improvements and detect weaknesses in the company. | 2 |

| | | | |
|---|---|---|---|
| Once used, how to play does not seem complex. | 1 | It facilitates the study of a case by having established the steps that must be followed | 3 |
| Intuitive and easy to use. | 7 | Yes, because it has use scenarios. | 1 |
| It implies knowledge of English. | 1 | Yes, it has a lot of casuistic and variables. | 1 |
| Useful to learn to work in groups. | 1 | The practical cases are coherent. | 2 |
| It helps to integrate concepts related to CE. | 1 | Some context combinations may be not rreal or not practicable. | 3 |
| It helps to guide yourself and understand the process. | 1 | Being a team work make arise a lot of ideas that are good for the good play of the game. | 1 |
| It is a little messy to know how to place each card. | 1 | It is interesting, it contributes to help real practical cases. | 2 |
| Needed more time. | 1 | Yes, it can help solve business problems and innovate in some field. | 1 |
| Entertaining and productive. | 1 | | |
| Shorter and clearer texts needed. | 1 | | |
| Easy to understand but not so easy to use. Some game stages are overlapped. | 1 | | |
| Reading the instructions is easy to understand. | 1 | | |

| Are the results logic and easy to understand? | Repetition of answers | Are results coherent with invested time and effort when using the tool? | Repetition of answers |
|---|---|---|---|
| Yes, they are logic and can bring real solutions | 1 | Yes; in a short period of time you can get many ideas and quite developed, taking into account that it is a first approach to the problem/challenge | 4 |
| Yes, but can bring unfeasible solutions due to economic, technological limitations. They could be a little far from reality | 3 | Yes, it is | 7 |
| Yes but the fields could be better defined in the response page so that it is more understandable | 1 | Yes; with more time, we would be able to research on the viability of the idea generated | 1 |
| Yes, the game puts the focus in aspects that could be otherwise overlooked. The results provide a different point of view | 2 | Yes, totally; this tool, when applied in a company can generate clear benefits, so the invested timed is totally justified | 3 |
| Yes, the tool is understandable and the obtained results are easy to apply | 4 | Yes. Besides, the duration of the tool can be adjusted to the dimension of the challenge, as it is quite flexible | 1 |
| Yes but you can complicate it as much as you like | 1 | Results results were better than what I expected at the beginning. However, I would have preferred to have more time | 1 |
| Once you analyse the cards, the results are coherent | 1 | Perhaps, I would have needed more time | 1 |

| | | | |
|---|---|---|---|
| Yes, although more time is needed if we need to obtain quantifiable results | 1 | Perhaps, time was not enough, but results were highly satisfactory | 1 |
| Yes, since the tool provides the framework, it is easier to work on the product. The game provides a good picture of the concept to develop. | 2 | | |
| The step by step process makes it easier to understand | 3 | | |

And for the open questions:

| I like… | Repetition of answers | I don't like… | Repetition of answers |
|---|---|---|---|
| It is a help for ideas generation and creativity | 6 | More time needed | 6 |
| It is a help to work team, collective entrepreneurship, give value to others opinions, share creative ideas | 5 | I'd have liked it to be more self-explanatory | 4 |
| It is is a help to approach the creative process in a different way | 2 | I'd have liked the game to be simpler, with more specific cards | 2 |
| It is a help to the project organization | 2 | I'd have liked to work in other areas, not just construction | 2 |
| It helps to face specific cases that otherwise would not have been taken into account | 1 | I would have liked that the board had more squares and cells to play. That would have tokens and would have to finish a game stage to start the next one | 2 |
| It helps to face unexpected situations | 1 | I would have liked it to be in Spanish | 2 |
| It is a help to guide me through the development and problem of a product | 1 | I have missed directions to link the different design requirements | 1 |
| It is a help for the analysis technique | 1 | Help is missing in the final stage of the game (ways to take advantage of the final definition) | 1 |
| It helps to clarify the steps that should be followed in this type of cases | 1 | If it were more continuous, it would help to the ability to innovate and invent business lines. | 1 |
| It helps to keep in order ideas | 1 | Little autonomy to generate ideas | 1 |
| It helps to bring real problems closer | 1 | It also could be applied to social issues | 1 |
| It helps to think about different fields of application of a product | 1 | I'd modify the scoring of ideas, ranking them, for example | 1 |
| It helps in the selection of important factors to improve | 1 | The results have a lack of applicability, only ideas are analysed and not their viability | 1 |
| It helps to guide an idea towards a possible business model | 1 | It is not a game. I wish it was more playful | 1 |

| | | | |
|---|---|---|---|
| It helps to promote ecological creativity and environmental awareness | 1 | It is not a game, I would have liked it to be more playful | 1 |
| To use recyclable materials or give them a second life | 1 | | |
| It helps to better understand the concept of circular economy. | 1 | | |

*Analysis of the open questions asked to the Spanish students*

# 4 STAKEHOLDER NETWORK

COMPOSITION OF THE STAKEHOLDERS NETWORKS (MARCH 2019)

| | Austria | Denmark | Portugal | Spain | Total |
|---|---|---|---|---|---|
| Higher education | 44 | 26 | 34 | 72 | 176 |
| Business community | 38 | 26 | 47 | 27 | 138 |
| Knowledge centres | 29 | 16 | 14 | 7 | 66 |
| Others | 12 | 15 | 25 | 3 | 55 |
| Total | 123 | 83 | 120 | 109 | **435** |

*Austria*

The workshop very successfully served the extension of our KATCH_e Stakeholder network, since the outcomes of the project and the applicability of the KATCH_e materials became visible. The cooperation with Circular Futures – Circular Economy Platform Austria and BauKarussell offered the opportunity to directly and indirectly exchange with their representatives via their networks and to disseminate the WS results.

Besides the multi stakeholder echange the opportunity of presenting KATCH_e in a different region in Austria was given. But not only locals took part: participants from business, academia, public and private institutions from three different (Vienna, Styria, Upper Austria) followed our invitation.

In Austria, the participants can be grouped in the following groups:

- Students: 5
- Professors: 2
- Researchers: 5
- Business Community: 16
- Associations: 5

- Public Authoritiers: 9

One university professor from Johanneum Research expressed interest in the training materials. Via linkedin contact to the Erasmus+ project CONDEREFF has been made and mutual interest in exchanging expressed.

*Denmark*

During and after the workshop, some participants offered to give more specific comments, especially to the KATCH UP! game. More people are also willing to test the MOOC.

After the workshop, meetings will be set up with two universities – University College Copenhagen and Malmö Technical university - to introduce KATCH_e for selected teachers and, hopefully, involve them in using the materials and testing the MOOC.

Moreover, representatives from a civil society organisation, Senior Erhverv (Jobs for Seniors) joined the workshop, and they are very interested in developing a Danish version of selected parts of the material. The purpose is to train their members in applying sustainability and circular thinking when they get a job in a SME.

*Portugal*

The workshop exceeded the expectations of the organizers in terms of participation. Initially, it was limited to 30 participants, however, due to the high interest, with more than 50 registrations, the session ended up with around 40 participants.

The results were very positive in terms of exploitation and feedback from the use of the tools, and a good indicator was the contacts received from several institutions after the workshop.

One company contacted LNEG in order to organize a training session using the tools to small companies and local public authorities within the Lisbon region.

One university contacted LNEG to explore the possibility of applying the KATCH_e tools in a new project under development in a different sector.

One of the national packaging management systems in Portugal, organized a meeting with LNEG to explore how to apply the materials from the project to their associated companies. The idea is: 1) to organize dissemination sessions to demonstrate the potential of the tools for the companies, and 2) adjust the KATCH_e tools to the needs of the packaging industry.

One university, contacted LNEG to organize a seminar about the project, CE methodologies and tools.

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*Spain*

All the participants are now members of our network and are receiving the newsletter.

# 5 EVALUATION OF WORKSHOP FORMAT

*Austria*

The approach of combining presentations of our projects approach and outputs, presentations from practice, workshops and the site vist worked out quite well for the participants; the program was informative, diverse and motivating. The three blocks of presentations were followed by questions from the audience and a short summary by the moderating person. The audience was very interested and actively involved with discussions, which continued in the four workshop groups. The practical working groups were too short to really dig into the topic but could give the participants an insight into our materials and their applicability on selected cases. First ideas for more circular solutions have been discussed and could be elaborated further. For a deeper understanding and feedback on our tools, more time would have been needed.

Networking activities have been possible during lunch break and the site visit.

The inputs from the participants have been very positive and gave rise to further improvements of the KATCH_e materials and maybe common activities. People were asking more specific and detailed questions in comparison to the first Stakeholder Workshop in July 2017 and were less critical regarding the implementation of strategies and measures for more circular solutions. At the first SHWS, the challenges had rather been seen as obstacles, at the second WS, the opportunities and potentials of Circular solutions have been more upfront. Of course this is partly due to the given presentations which showed what is already on its way and how innovative solutions could be elaborated via methodical approaches. Also, because different people participated, it is hard to compare the two workshops.

In general, the impression was that either the reception of the concept of Circular Economy had developed or the participants had a different view because of the content of the presentations/workshops.

*Denmark*

The initial presentation on Circular Economy and the related examples created a lot of interest and discussion. We could have spend more time on this, but had to stop the discussions to manage the time.

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Most of the groups had enough time to test the tools. However, with a more developed case, they would have been better supported in digging deeper into the different CE aspects. On the other hand, this would have required more time than we had.

The participants had very different background knowledge and experiences with CE – from nothing to quite developed. People without knowledge had a harder time to familiarize themselves with the ideas in the tools and to develop specific, relevant ideas. We should be more aware of this when planning for and organizing a workshop.

17 participants filled in an evaluation scheme after the workshop and were in general very positive giving an average score of 8,9 out of 10. Among the positive aspects mentioned were, that people liked the presentations and the chance to use and test some tools. Among the less positive aspects were mentioned the need for a more developed case to work on, and having a chance to test more than one tool.

### Portugal

After the session, a form was developed and sent to all participants to evaluate the workshop and collect individual feedback.

The global evaluation was rated as "very good" and "good". The only negative comment was related to the duration of the session. Some participants wished to had have more time to explore the tools.

The concept adopted for the session proved to be efficient, expressed in the involvement and motivation of the participants in the session, the results attained with the exercises and presented in the end of the session, and also in the contacts and the interest shown by some participants after the workshop.

### Spain

Considering all facts, we believe that the applied methodology for group discussions to develop a business value idea taking into account circular economy strategies would be relevant, but taking into account the necessity of improvements in the game steps to be more easy to undertand. The singularities of the methodology were 2 in our opinion:

1) The warming up through brain exercises that allowed the participants to be creative, laugh and therefore afterwards they were ready for debate and discussion how the game methodology helps to create a business value idea using circularity perspective and strategies.
2) The four groups worked with different business problem during the game, but not necessary with different product category to be developed and then in the final round of speech, they got the chance to find out about the others' conclusions

and they had to assess them, grading the relevance of each business proposal to findings solutions using Circular Design strategies and Circular Business Strategies.

The methodology allowed a lot of interaction and it was very interesting to receive the inputs of the other groups about the methodology and archetype of the game. However, it was very time consuming so this methodology should be reviewed in order to spend less time evaluating the first 3 steps of the game.

# 6 CONCLUSIONS

The stakeholder workshops took place during the period December 2018 to February 2019 in all four countries. A total of 150 participants joined the workshops (43 in Austria, 41 in Denmark, 39 in Portugal and 27 in Spain) representing primarily the main KATCHe project target groups: Higher education, Business community and Knowledge centres. This is well above the overall goals set for the project – 25 participants per workshop.

The workshop served a number of purposes.

- Presenting KATCH_e outcomes and inviting or confirming potential members for the national stakeholder network and future cooperation
- Testing and having feedback on selected KATCH_e materials
- Actively engaging students before and during the workshop

The Spanish workshop in December 2018 was organized for a group of master students to test and evaluate on one of the tools – the KATCH Up! game. Hereby, students were actively involved and the feedback was used to prepare an improved version of the tool for testing on the other national workshops.

In Austria, Denmark and Portugal, the workshops were organised together with organizations outside the consortium. This is probably one of the reasons for the large number of participants. Moreover, it supported the dissemination of knowledge and laid the foundation for future cooperation, also after the project period.

The involvement of students were successful in many ways. Firstly, involving them directly in testing and evaluating the tools brings valuable understanding on how to best adapt the KATCH_e materials for student learning purposes. Secondly, during the group work, students joined mixed groups and were thus involved in debating and learning with people from different organizations. Moreover, some students had a chance to present and discuss their findings with an audience outside academia. Finally, in some cases, students were asked to report from the group discussions to have a qualified feedback

from during the testing, as a supplement to the evaluation and feedback after the testing of the tools.

The KATCH Up! tools was tested in all four countries – and much of the feedback focused on the same issues which will guide the development of the final version of the tool.

The tools CE Strategist and CE Designer were tested in three countries, but in different versions since the digital versions were not ready for test at the time. The feedback on these tools showed that people find them interesting and potentially valuable, but also that we need to look into how we can support people in using the tools and in understanding the outcomes.

The CE Journey tool was tested in one country, also bringing valuable feedback to the tool developers.

From the organization of the workshops, some lessons can be learned for how to organize such kind of workshops with a high quality and outcome for the participants:

- Involving people from both academia and business world led to interesting perspectives and knowledge sharing, both conceptual and more practical

- Testing of the tools became more successful when there are good cases for the participants to work on

- Even if the tools ideally should be self-explaining, the participants' outcome was better when facilitators supported the group work.

- Time is an issue. More time could have given even better outcomes for the participants. However, it might still be better to have people wanting more time, than people being bored.

- Open workshops with participants from different types of organizations and different previous knowledge on CE can create interesting discussions. However, it is important that the facilitators are observant and ready to actively support groups with a limited knowledge on CE and sustainability.

Finally, the workshops resulted in growing and developing the national stakeholder network. By March 2019, the number of stakeholders in the network has reached a total of 419, which is ten times higher than the initial target.

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# ANNEX A: WORKSHOP PROGRAMS

Invitation/program for the Austrian workshop:

## Bauen und Wohnen in der Kreislaufwirtschaft

Workshop zur Entwicklung kreislauforientierter Produkte und
Geschäftsmodelle am Beispiel der Bau- und Möbelbranche

**Veranstaltet von**
**Circular Futures – Plattform Kreislaufwirtschaft Österreich** – Umweltdachverband (UWD),
European Environmental Bureau (EEB), RepaNet - Re-use- und Reparaturnetzwerk Österreich -
**in Kooperation mit** dem Österreichischen Ökologie-Institut, der TU Wien (KATCH_e Projekt)
und BauKarussell

**Mit Unterstützung von**
Bund und Europäischer Union

**Mittwoch, 27. Februar 2019**
10:00 – 17:00 Uhr
Hotel Daniel (Terrassensaal), Europaplatz 1, 8020 Graz

**Kreislaufwirtschaft als Motor für innovative Produkte und Geschäftsmodelle in der Bau-
und Möbelbranche nutzen**

Innovative Produkte, Dienstleistungen und Geschäftsmodelle sind der Schlüssel für den Übergang in eine
stärker kreislauforientierte Wirtschaft. **Doch wissen Sie, wie Sie ihr Angebot fit für die Zukunft
machen?**

Aktuell werden die ökologischen und wirtschaftlichen Vorteile einer stärker kreislauforientierten
Wirtschaft zu wenig genutzt – das trifft auch auf die **Bau- und Möbelbranche** zu. Das soll und muss sich
ändern.

Geht es nach der **Europäischen Kommission**, so soll die Kreislaufwirtschaft in allen Bereichen der
europäischen Wirtschaft zügig Fuß fassen. In den letzten Jahren wurden zahlreiche Strategien,
Arbeitspläne und Gesetzesinitiativen von der Kommission hierzu vorgelegt. Dass EU-Rat und Parlament
den Weg der Kommission unterstützen, zeigt nicht zuletzt die im Dezember letzten Jahres erfolgreich
verabschiedete Richtlinie zu Einwegkunststoffen.

Wie können ArchitektInnen, DesignerInnen und Unternehmen der Bau- und Möbelbranche in Österreich
den Weg der Kreislaufwirtschaft mitgehen und für Innovation, Fortschritt und regionale Wertschöpfung
nutzen?

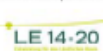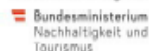In einem halbtägigen Workshop bringen wir

- ArchitektInnen
- DesignerInnen
- Unternehmen
- Umweltorganisationen
- sozialen Organisationen
- Forschung
- Universitäre Ausbildungsstätten
- Politik und Verwaltung

zusammen, um gemeinsam an der Entwicklung kreislauforientierter **Produkte und Geschäftsmodelle**
in der Bau- und Möbelbranche zu arbeiten.

Anmeldung unter: https://bit.ly/2ARjRKW

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## Workshop-Programm

### Bauen und Wohnen in der Kreislaufwirtschaft

*Kreislaufwirtschaft als Motor für innovative Produkte und Geschäftsmodelle nutzen*

**9:30**  Registrierung & Café

**10:00**  Willkommen

**10:05**  **TEIL 1:**
**Politische und rechtliche Vorgaben auf EU-Ebene und Zielerreichung in Österreich + Q&A**

Moderation: Julika Dittrich, Projektleitung Circular Futures, Umweltdachverband

**Vortrag 1:**
EU –Ebene
Referent: Jean-Pierre Schweitzer, Product Policy and Circular Economy Officer, European Environmental Bureau (EEB)
- Mittel- und langfristige Zielsetzungen in den Zielbranchen
- Rechtliche und politische Vorgaben

**Vortrag 2:**
Österreich: Rahmenbedingungen zur Kreislaufwirtschaft und Leuchtturmprojekte
Referentin: Ingrid Winter, Referatsleiterin, Referat - A14 Abfallwirtschaft und Nachhaltigkeit, Amt der Steiermärkischen Landesregierung
- Rahmenbedingungen zur Kreislaufwirtschaft
- Leuchtturmprojekte
  - Projekt „Retourmöbel Steiermark"
  - Europäisches Baurestmassenprojekt „CONDEREFF"

**10:45**  **TEIL 2:**
**Herausforderungen und Chancen von Kreisläufen + Q&A**

Moderation: Matthias Neitsch, Geschäftsführer RepaNet

**Vortrag 1:**
Kreislauffähiges Design - Lebenszyklusdenken und Werterhalt entlang des Lebenszyklus (Das Value Hill Modell)
Referent: Rainer Pamminger, Forschungsbereich ECODESIGN, Technische Universität Wien

**Vortrag 2:**
Innovative Geschäftsmodelle – Wertschöpfung anders denken
Referent: Stephan Schmidt, Forschungsbereich ECODESIGN, Technische Universität Wien

**Vortrag 3:**
Re-Use - BauKarussell als Teil des kreislaufwirtschaftlichen Bauens
Referent: Thomas Romm, Architekt, Romm / Mischek ZT

**11:40**  Vorstellung der Workshopthemen und Diskursräume

**12:00**  Mittagspause

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Österreich

**12:45   TEIL 3:**
**Österreichische Unternehmen stellen sich der Herausforderung**
**Kreislaufwirtschaft + Q&A**

**Moderation:** Maria Kalleitner-Huber, Ressourcenmanagement, Österr. Ökologie-Institut

**Good Practice 1: Fenster der Zukunft**
Johann Brandstetter, Geschäftsführer Internorm Fenster GmbH
Raphael Kern, Diplomand, Technische Universität Wien

**Good Practice 2: Geschäftsmodelle im Schalungsbau**
Thomas Meinschad, New Materials and Physics Research, doka

**Good Practice 3: Modulare Gebäudesysteme**
Alexander Szymoniuk, Sales Manager, Lukas Lang Building Technologies

**13:40   TEIL 4:**
**Workshop und Diskursräume**
**Wie richte ich meine Tätigkeit in Richtung Kreislaufwirtschaft aus?**

- Anwendung von Designstrategien
- Entwicklung neuer Geschäftsmodelle
- Bewertung der Kreislauffähigkeit von Produkten

**Moderation & Begleitung durch das KATCH_e Team**

**14:45   Zusammenschau und Abschluss**

## SITE VISIT
## Reininghausgründe

**15:00   TEIL 5:**
**Besichtigung der Reininghausgründe – Potentiale schöpfen –**
**verwertungsorientierter Rückbau in Umsetzung erleben**

Die Reininghausgründe sind das größte und ambitionierteste Stadterweiterungsgebiet in Graz und liegen eingebettet in die Grazer Bezirke Gries, Eggenberg und Wetzelsdorf. Mit dem vom **Österreichischen Siedlungswerk** initiierten Projekt zum verwertungsorientierten Rückbau des ehemaligen Brauereiareals ist hier derzeit Österreichs größte Kreislaufwirtschafts-Baustelle zu besichtigen.

**Thomas Romm** und **Markus Meissner** vom **Konsortium BauKarussell** führen in die Potentiale und Herausforderungen des verwertungsorientierten Rückbaus ein.

www.reininghaus-findet-stadt.at

**17:00   Ende der Veranstaltung**

Invitation/program for the Danish workshop:

**Hvordan lærer man at arbejde professionelt med cirkulær økonomi?**

**14.00: Velkomst v. Sanne Vammen Larsen, IDA Miljø**

**14.10: Hvad er cirkulær økonomi v. Mette Mosgaard, AAU**

**14.25: Kort intro til Katch_e projektet**
- 10 bud for arbejdet med CØ
- Eksempler på studerendes arbejde med materialet fra Katch_e

**14.40: Introduktion til dagens tre værktøjer v. Kirsten Schmidt AAU**
- KATCH UP! Spil om udvikling af cirkulære forretningsstrategier
- CE Strategist – Cirkulære forretningsmodeller ud fra Business Model Canvas
- De 10 bud anvendt ved redesign af produkter

**15.00: Pause**

**15:20: Hands-on: Prøv selv at arbejde med et af vores værktøjer**
**v. Mette Mosgaard, Rikke Huulgaard og Kirsten Schmidt, AAU.**

**16.40: Diskussion af værktøjerne og forslag til videreudvikling**
**v. Mette, Rikke og Kirsten, AAU**

**16.55: Afrunding på dagen v. Mette Mosgaard, AAU**

Invitation/program for the Portuguese workshop:

# II Workshop Nacional

## Ferramentas para a Economia Circular

KATCH-e

Knowledge Alliance on Product-Service Development towards
Circular Economy and Sustainability in Higher Education

# 7 de fevereiro 2019

LNEG - Laboratório Nacional de Energia e Geologia
Edificio C, Estrada do Paço do Lumiar 22, Lisboa

**Programa**
13:30 - Receção dos participantes
14:00 - Boas-vindas
14:15 - O projeto KATCH_e
      Cristina S. Rocha, responsável do projeto, LNEG
14:30 - Introdução à economia circular e apresentação
      de 4 ferramentas desenvolvidas no âmbito do projeto
      Cristina S. Rocha, David Camocho e Jorge Alexandre, LNEG
      João Sampaio e Ana Afonso, Universidade de Aveiro
15:00 - Grupos de trabalho para aplicação das ferramentas:
    • CE Journey Map
    • KATCH UP Game
    • CE Designer
    • CE Strategist
17:00 - Apresentação de resultados e debate
17:30 - Encerramento da sessão

Entrada livre sujeita a inscrição prévia e limitada à lotação da sala.
Inscrições para o email: david.camocho@lneg.pt

LNEG
Laboratório Nacional de Energia e Geologia, I. P.

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*Knowledge Alliance on Product-Service Development towards
Circular Economy and Sustainability in Higher Education*

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II Workshop Nacional

Ferramentas para a Economia Circular

Knowledge Alliance on Product-Service Development towards Circular Economy and Sustainability in Higher Education

7 de fevereiro 2019

LNEG - Laboratório Nacional de Energia e Geologia

Edifício C, Estrada do Paço do Lumiar 22, Lisboa
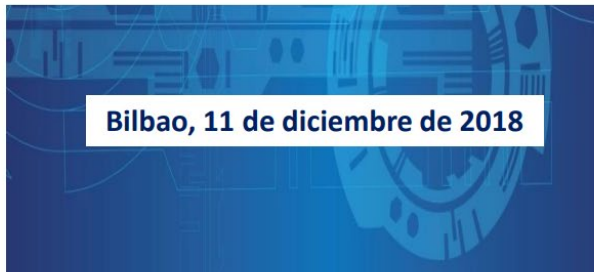
Invitation/program for the Spanish workshop:



WORKSHOP KATCH_e
Desarrollo de Productos-Servicios hacia la Economía Circular en los Sectores de Construcción y Mueble

Bilbao, 11 de diciembre de 2018

Basque Ecodesign Center Hub Harrobi Plaza, 48003 Bilbao

**Agenda - Workshop**

| | |
|---|---|
| 8.30 – 8.50 | Introducción. Proyecto KATCH-e |
| 8.50 – 10.45 | Juego KATCH-UP! |
| 10.45 – 11.15 | Descanso |
| 11.15 – 12.00 | Debate |