Report on

Deliverable 5.2

Dedicated workshops with the EuroTeQ partners

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EXECUTIVE SUMMARY

This executive summary provides an overview of Deliverable 5.2 within Work Package 5 (WP5) of the BoostEuroTeQ project, focusing on the analysis of universities' engagement with their surroundings and the development of learning networks and co-creation communities. The main objective of Deliverable 5.2 is to conduct a series of workshops with EuroTeQ partners to foster co-creative efforts and establish long-term partnerships. The deliverable builds upon the findings of Deliverable 5.1, which conducted a SWOT analysis of responsibilisation instruments and co-creation communities. The approach for Deliverable 5.2 involved organizing workshops at partner universities, primarily centered around the EuroTeQ Collider, to engage stakeholders, setting up evaluation networks, and discussing improvements to co-creation instruments. Two phases of workshops were conducted, focusing on diverse participant engagement and collaboration with the EuroTeQ Project, which included a total of eight workshops conducted and one tentatively scheduled. In addition to the workshops, various supportive intervention activities were conducted. Despite some workshop scheduling and participation challenges, the deliverable contributed to insightful data collection and research output, including the publication of research papers. The outcomes of the workshops will be utilized to enhance co-creation instruments within partner universities and support future project phases. Challenges encountered primarily revolved around workshop logistics and participant availability. Still, they were mitigated through alternative forms of engagement and scheduling additional workshops past the deadline of this delivery, some of which will also form part of Deliverable 5.3.

DELIVERABLE DESCRIPTION AND KEY OBJECTIVES

As part of the general goal of Work Package 5 of the BoostEuroTeQ project to analyze how universities can engage with their surroundings and to develop "learning networks" and "connecting communities" as long-term partnerships, the goal of deliverable 5.2 is to conduct a series of dedicated workshops with the EuroTeQ partners. WP5 focuses on further supporting the emerging or existing co-creative efforts funnelled into the Erasmus+ modules "EuroTeQ Collider"[1] and "EuroTeQ Connector"[2], seeding a sustainability rationale aimed at promoting the connection among existing communities with the ambition of turning them into long-term partnerships. The workshops conducted as part of the deliverable form the backbone of the process, which has the key objectives as follows:

- Engage the co-creation partners to discuss the co-creative instruments.
- Set up networks for exchanges for evaluations between EuroTeQ partners
- Discuss possible improvements to the co-creation instrument

The deliverable builds on the outcome of Deliverable 5.1, a SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats) of responsibilisation instruments and co-creation communities at EuroTeQ partner universities. Various communities and instruments of co-creation and responsibilization were identified, and a database was created as part of Deliverable 5.1, which also provided the starting point for the activities of Deliverable 5.2. In addition, the workshops were also guided by the theoretical foundations set up as part of the work conducted in Work Package 4.

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[1] EuroTeQ Collider is one of the key elements of the EuroTeQ2030 project. The Collider is a challenge-based learning activity linked to the United Nations Sustainable Development Goals (SDGs). (See https://euroteq.eurotech-universities.eu/docuwiki/wp3/)

[2] EuroTeQ Connector is part of the EuroTeQ 2030 project about launching new expert and research communities. (See https://euroteq.eurotech-universities.eu/docuwiki/wp5/)

APPROACH

Following the Work Package 5 objective to support the emerging or existing co-creative efforts funneled into the Erasmus+ modules "EuroTeQ Collider" and "EuroTeQ Connector," the approach for deliverable 5.2 was to center the activities around the "EuroTeQ Collider" and close communication was kept with the "EuroTeQ Connector." Building on Deliverable 5.1 and Deliverable 5.2, the approach also included continued study of identified responsibilisation instruments and co-creation communities at EuroTeQ partner universities. The activities were approached with significant collaboration and communication with the ERASMUS+ Project EuroTeQ, providing feedback and exchanging ideas and recommendations generated to compliment the "EuroTeQ Connector."

Activities were conducted in two phases. The first phase had each of the universities in the consortium conducting workshops in their respective universities. TU/e played a leading role in all these workshops providing the tools and formats. Two templates/tools were mainly employed in this phase of the workshops - 1. Five bold steps, vision canvas, and 2. Sun behind mountain vision canvas.

The workshops were mainly aimed at participation from students, mentors, and other stakeholders involved in the "EuroTeQ Collider" events in respective Universities. The approach raised the question of how or in what ways the Collider is unique and can be used as a CBL format for alliance building. Each partner university was also provided guidelines based on the first Workshop organized in TU/e. Three more workshops in CTU, TalTech, and DTU were conducted, the details of which are presented in section 3 of this document.

In the second phase, the approach was made more fluid which provided more flexibility that could involve a diverse array of participants. The approach was to utilize any opportunities to facilitate discussions or communications aimed at improving mechanisms across the EuroTeQ partner universities was taken advantage of, often through communication, exchange of ideas, and providing feedback in addition to organizing additional workshops and collaborating in those organized as part of other Work Packages. Beyond EuroTeQ Collider, other instruments were identified as part of Deliverable 5.1, and it was also taken on board as the topics for the activities which included one workshop that was conducted with participation from four Universities TalTech, CTU, TUM, and TU/e.

While all efforts were made to conclude scheduled workshops before the deadline of this deliverable, given the constraints put by the realities of bringing together a mass of people for any workshops, some of the workshops in the pipeline were not concluded by the deadline date of this deliverable report. The scheduled workshops are still part of this deliverable and add to the fulfillment of the objectives set by this deliverable. Two workshops scheduled for 26th February (not yet conducted while writing this report) and early April (tentative) 2024 are also part of this deliverable.

WORKSHOPS CONDUCTED/SCHEDULED AND DETAILS OF ACTIVITIES

The following workshops were conducted in each of the Universities as part of the first phase of the workshops conducted in each of the Universities:

22nd of February 2023 - BoostEuroTeQ Collider Workshop (CTU)

The first Collider workshop at CTU was intended to set up a discussion between all stakeholders who are involved in EuroTeQ Collider at CTU (students, challenge owners, teachers and university representatives) and ease providing feedback from between them. Dr. Patrik Mottl organized the workshop and co-moderated with Prof. Henri Achten (EuroTeQ WP3 lead at CTU). The CTU Collider student representatives were active discussants and provided their feedback from their Collider expectations and experience. We discussed the improvements for future Collider rounds at CTU, including infrastructure, support, communication, etc. The importance of detailed communication with challenge owners to motivate them to participate actively and to meet their expectations was also mentioned.

20th of March 2023 - BoostEuroTeQ Collider Workshop (TU/e)

This workshop was conducted to set up the template for the other workshops to follow. The workshop was jointly organized by Lukas Fuchs (WP5 lead) and Lianne de Jong (EuroTeQ WP3), with 11 participants in the workshop. Two templates were used the first was "5 bold steps vision," which focused on coming up with different values from participants and using them to formulate a vision for the collider. Some input about the new Collider in EuroTeQ 2030 was provided, and the paper "University Alliances as Learning Networks: Towards Responsible European Engineering Universities?" was presented. Through the steps, the question of how the collider is unique can be used as a CBL format for alliance building. For the second template (sun behind the mountain), 4 groups were formed, and each group was asked to think from the perspective of a different community in the collider (1) Tu/e; 2) EuroTeQ Alliance; 3) Brainport Eindhoven ecosystem; 4) diverse learners who might benefit from lifelong learning activities).

18th of April 2023 - BoostEuroTeQ Collider Workshop (DTU)

A Collider workshop was held on April 18th 2023 at DTU between Monamie Haines, Corinna Voll and Christina Jespersen. A major part of the workshop dealt with the broader institutional challenges of integrating EuroTeQ initiatives at DTU. The general agreement was that from a broader strategic perspective, EuroTeQ is sometimes managed as a parallel track rather than an integrated one for overall university goals. The discussion, therefore revolved around the challenge of visibility of the Collider both at DTU generally and, more specifically at courses that are chosen to be part of the Collider challenge. As part of this, the workshop addressed the differences between Danish and international students in their interest in European challenges. Another idea discussed was integrating the Collider more closely into existing places such as DTU Skylab.

21st of April 2023- Collider "Boosting" workshop (TalTech)

Following the lead of TU/e, TalTech organised a workshop with the main objective of evaluating the Collider and also discussing how challenge-based learning exercises such as Collider can be improved. Shobhit Shakya organized the workshop with the involvement of Karl-Erik Karu (EuroTeQ WP3) and other colleagues from BoostEuroTeQ and EuroTeQ 2030 in TalTech. There were 9 participants in the workshop, including students, mentors, and organizers of the Collider, in addition to the BoostEuroTeQ representatives. The workshop followed the "5 bold steps vision" template to discuss Collider's vision as an example of a challenge-based learning exercise from amongst each of the participants. Worldcloud was used to point out the keywords each participant had in mind. The challenges and the available supports were discussed to set up an open discussion on how Collider could be made more effective.

As part of the second phase of workshops planned, the following workshops were conducted and planned/scheduled.

15th of June - EUI CBL and Collider Workshop (CTU)

This workshop at CTU in Prague was part of the two-day meeting of Czech universities which are members of the European Universities Alliances. The workshop aimed to discuss the opportunities and challenges in implementing new teaching formats such as Challenge-Based-Learning (CBL) into curricula at Czech universities and the role of European Universities Alliances in sharing best practices.

The topic was introduced by a keynote presenting current experience at CTU based on the EuroTeQ Collider Dr. Patrik Mottl presented from CTU. The second part was held in an open discussion format moderated by Dr. Patrik Mottl, and Prof. Henri Achten (EuroTeQ WP3 lead at CTU) acted as an important discussant.

27th of November 2023 - Compete or co-create? The future of university alliances[3]

The workshop was conducted during the WP4-6 project meeting at TU Eindhoven. The advantages of university alliances in promoting responsible co-creation with societal partners were explored in the workshop, organized in an open discussion format with a keynote speech and a discussant. Prof. Sebastian Pfotenhauer from TUM stressed the necessity for empirical research to guide co-creation activities and mitigate risks associated with scaling. Prof Erki Karo, who acted as the discussant, followed up on the discussion. Prof. Paul Koenraad, Dean of the Graduate School at TU/e, emphasized the importance of alliances in facilitating stakeholder engagement and entrepreneurial learning, mainly through Challenge-Based Learning (CBL). Audience interaction highlighted distinctions between co-creation and CBL, alongside inquiries about the role of alliances in competition and global technological dynamics. Suggestions for the way forward included promoting mutual learning, redefining the "elite" label, and aligning collaborative efforts thematically across universities.

22nd of February 2024 - Formula Student as an instrument of co-creation of engineering education

The workshop was conducted online with the involvement of team captains/and or segment leads from each Formula Student engineering design competition[4] teams from the Universities TUM, TalTech, CTU, and TU/e. The workshop was planned based on the outcome of the ongoing research as part of the documentation of instruments of co-creation and responsibilization amongst the partner Universities. Key dimensions and important elements within each dimension analyzed by the ongoing research were discussed with the participants to validate the research outcome. There were a total of 6 participants in the workshop.

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[3] A blog article about this event has been published by Corinna N. Voll (DTU, WP6 lead) (see https://euroteq.eurotech-universities.eu/news/compete-or-co-create-the-future-of-university-alliances/)

[4] Formula Student is a loosely connected cluster of competitions the are held around the world which feature students designing and building Formula racing cars. (see https://en.wikipedia.org/wiki/Formula_Student)

26th of February 2024 - Roadmap to co-creation teaching for responsible engineering education

The workshop is organized as part of the activities under WP6. The workshop is mainly organized as part of deliverable 6.4 to create a Roadmap for co-creation teaching in EuroTeQ universities based on framework documents from task 6.3 and in collaboration with the teaching and learning units at the partner universities. However, to seek better synergy with WP5, a part of the Workshop was dedicated to discussing Collider as a means of co-creation teaching. The break-out discussion was planned to tackle the topics concerning the framing of the goals of co-creation teaching and the complexities concerning evaluations in co-creation teaching. At the time of writing this report, the workshop has not concluded.

Scheduled April 2024 (tentative) - Leading the way towards better co-creation and responsibilisation: EuroTeQ Alliance.

This workshop is planned as a meetup and discussion between University leadership and other key stakeholders as part of the instruments of co-creation and responsibilization identified by the work conducted within WP5 activities. The workshop will also present the improvements made so far as documented by the research undertaken as part of WP5 activities and also point out the potential activities which can further bolster the effectiveness of the co-creation instruments and responsibilization. The workshop will aim to achieve commitments from the leadership of the partner universities towards enhancing the efforts towards the co-creation of engineering education through the instruments and communities as identified by WP5 activities.

Other activities

In addition to the listed workshops conducted/scheduled, various other activities also complement the deliverable, which includes the publication of research papers and communication activities to exchange insights and information with EuroTeQ project partners, WP3 and WP5 members, and the wider academic community. As part of this work package, four research publications in leading journals and conference proceedings were published, drawing on the workshops and other activities of WP5:

Fuchs, L., & Bombaerts, G. (2022, March). Responsibility in University Ecosystems and Challenge Based Learning. *IEEE Global Engineering Education Conference (EDUCON)*.

This conference paper argues that the literature has not yet discussed the role of responsibility for universities, their students, and their ecosystems in challenge-based learning. It explores this gap using Niklas Luhmann's structural differentiation, structural coupling, and irritation concepts. It studies how the focus of CBL on responsibility influences the structural couplings of the subsystems of education, research, and economy in society. Responsibility in students and universities could be promoted by creating structural couplings between these subsystems. The paper shows why practice-based education may be undersupplied at universities and how novel education formats can be understood to fill this gap.

This paper was presented by Dr. Lukas Fuchs at the IEEE Global Engineering Education Conference on 30th March 2022.

Fuchs, L., Cuevas-Garcia, C., Bombaerts, G., & Mottl, P. (2022). University Alliances as Learning Networks: Towards Responsible European Engineering Universities? *IEEE Frontiers in Education Conference.*

This conference paper focuses on the European Universities initiative and critically discusses the rationale and goals for establishing such alliances, focusing on the example of the EuroTeQ Engineering University. How can forming university alliances create learning networks and, in this way, increase moral reflexivity? For this purpose, we will consider the role of universities of technology in the 21st Century and the role that university alliances as learning networks can play to fulfill this role.

Dr. Lukas Fuchs presented this paper to the Frontiers in Education Conference (Uppsala, Sweden) in October 2022.

Fuchs, L., Bombaerts, G., & Reymen, I. (2023). Does entrepreneurship belong in the academy? Revisiting the idea of the university. *Journal of Responsible Innovation.*

This research paper delves into the intersection of academia and entrepreneurship, discussing the evolving idea of the university. Through philosophical analysis, the paper considers some of the deep tensions between instrumentalist and idealist views about the role of universities and argues that there is space for academic entrepreneurship, not merely as an add-on but as an integral part of university activity. An attractive form of academic entrepreneurship becomes possible by formulating a research-oriented vision of academic entrepreneurship.

A version of this paper was presented by Dr. Lukas Fuchs at the 9th Conference for Practical Philosophy at the University of Salzburg on 30th September 2022.

Fuchs, L., Cuevas-Garcia, C., & Bombaerts, G. (2023). The societal role of universities and their alliances: the case of the EuroTeQ Engineering University. *Tertiary Education and Management*.

This research paper was published in a special issue on European University Alliances and investigates the role of universities in society, focusing on the EuroTeQ Engineering University as a case study. Drawing on interviews, course observations, and co-creation workshops, it analyses the alliances formed by universities to address contemporary challenges and drive socio-economic development. It promises to study alliances as places for knowledge exchange, where know-how, institutional strategy, and moral reflection can be gained. By showcasing the EuroTeQ Engineering University's initiatives, the paper underscores the transformative potential of university alliances in shaping the future of engineering education and driving societal change.

Dr. Lukas Fuchs presented versions of this research paper to audiences at the EASST conference in Madrid in July 2022, to the HumTec center at RWTH Aachen in July 2023, as well as the European University Alliances Research Group on 25th October 2023 (with Dr. Carlos Cuevas-Garcia).

As supporting activities, the interventions at TUM followed a variety of formats. Carlos Cuevas Garcia supported the definition of evaluation criteria for both Collider implementation and guidelines for jury members' assessment during meetings with EuroTeQ representatives (WP5 Connector, Selina Michel) on the 3rd of December 2021 and the 3rd of February 2022. Inputs were also provided during meetings with EuroTeQ Connector staff members and the Collider organizer at TUM (Veronica Becker) on the 1 March 2022, the 6 April 2022, and the 9 August 2022. Carlos also exchanged experiences with Prof. Stefan Wurster, the main responsible for the Collider at TUM on the 15th of June 2022. Additionally, he conducted deeply engaged participant observations as a jury member on three Collider finals, on 30.05.2022, 18.11.2022, and 02.06.2023. Finally, Carlos provided input about inclusion and responsible innovation to the teams during the "check-in sessions" on 20 October 2022.

Contributing to the Collider was also done in TalTech with Veiko Lember and Shobhit Shakya co-teaching a course with a challenge-based approach - MNA5410 Digital Transformations of Government. In line with the Collider format in Spring 2023,

students could take a set of available courses with the option to join the Collider at the end of the course. Unfortunately, none of the students from the course opted to join the Collider competition. The students were asked about their decision which showed that the timing of the Collider event overlapped with other exams. Because Collider participation was optional and only promised minor extra points for their course grading, going to the Collider wasn't popular amongst the students.

In addition to the activities mentioned above, continued data collection on select instruments and communities of co-creation and responsibilization have also provided the knowledge base and understanding of the ecosystem within the partner Universities. Visits to the "Collaborative spaces" within each partner Universities and conducting surveys and in-depth qualitative studies of their projects have enhanced knowledge of the ecosystem of various instruments and communities. The workshop tentatively scheduled for April will be highly rich with insights that will help achieve the goals as part of the future deliverables of WP5.

OUTCOMES AND EXPLOITATION

There were eight workshops conducted amongst the EuroTeQ partners with the involvement of various stakeholders and one workshop has been tentatively scheduled. The number of workshops has provided the opportunity to gather highly insightful data that sheds light on the current status of the Collider and other co-creation instruments. The workshops, in addition to other complimentary tasks conducted as part of Deliverable 5.2, have enabled the production of robust research output, which will be exploited further with meetings and workshops with University leadership in the upcoming phases of the project to help make improvements on the co-creation instruments within the partner universities. The efforts to this direction have already been made with the outcome of the various workshops conducted was summarized and the summary was handed over to EuroTeQ WP3 to support the deliverable 3.23 of EuroTeQ. Evaluation criteria within the Collider events have been helped through WP5 activities. The research team involved with WP5 has been constantly in contact with the EuroTeQ WP3 and EuroTeQ WP5 members, which will be conductive towards facilitating co-creation networks. With research output in the form of four research papers published and at least 2 more in the pipeline, there can be further opportunities to shape the co-creation instruments and create co-creation communities within the EuroTeQ partner universities.

SHORTCOMINGS AND CHALLENGES ENCOUNTERED

Given the complexities of conducting workshops, there were challenges and difficulties associated with the deliverable. Constructive and effective workshops require quality participation and, to some extent, quantity. Given the case, the timeliness of the conduction of the workshops was the main challenge due to the difficulty in finding suitable participants. Even though some of the shortcomings were compensated by other forms of interventions like participation directly in Collider as in TUM and TalTech, it can be said that falling short of conducting some of the workshops aimed for this deliverable within the deadline of this deliverable was regrettable. Yet, with the workshops that will be steered towards Deliverable 5.3 and Milestone 5.2 already in the pipeline, the shortcomings have been greatly compensated.