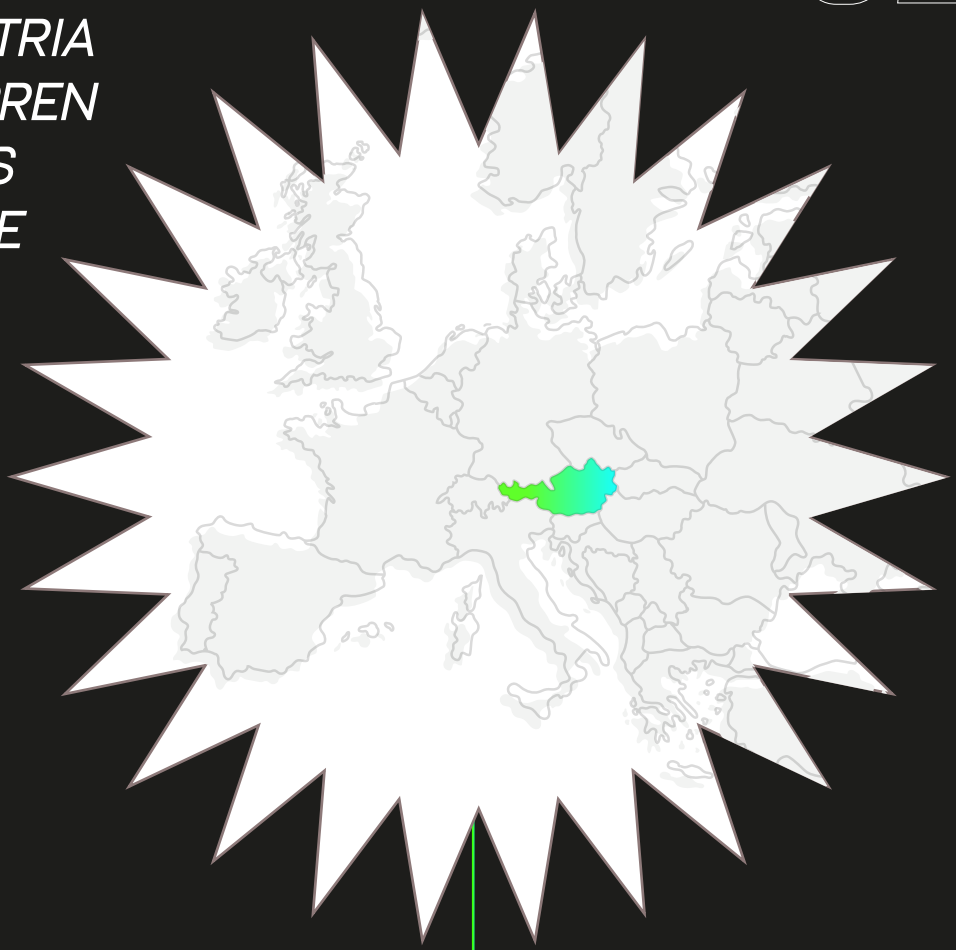
GENB
YOUNG BIOVOICES
FOR A SUSTAINABLE
FUTURE

factsheet

OVERVIEW OF LIVING LABS ORGANISED IN AUSTRIA TO EMPOWER CHILDREN AND YOUNG ADULTS FOR A SUSTAINABLE FUTURE

July 2023



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WHAT ARE *living labs?*

Living Labs, a relatively novel concept that emerged in the early 1990s (e.g., Bajgier et al.,1991) has transformed the landscape of research and development. While there is no universally accepted definition for Living Labs, Professor William Mitchell, who is most prominently associated with Living Labs, defines them as 'a research methodology for sensing, prototyping, validating and refining complex solutions in multiple and evolving real-life contexts'. Distinguishing themselves from traditional labs, they emphasize user-centricity, experiential learning, real-life context, and co-production of knowledge through co-creation methodologies.

Although the users are at the forefront of Living Labs, they usually involve heterogenous actors. Leminen (2012) describe the membership of Living Labs as the 4P partnership 'public-private-people partnerships'.

The GenB Living Labs had a clear objective: Co-creating innovative approaches, formats, materials and tools, through the cooperation between children, young adults, parents, teachers and other formal and non-formal education professionals, to provide educational and informational toolkits on bioeconomy in general and bio-based sectors.

Living Labs function in a structured process involving four main stages. While the names of these stages may vary across authors and sectors (see e.g., Ståhlbröst and Holst 2012), these stages which may be iterative depending on the context, form an essential framework for the activities of Living Labs. The GenB Living Labs adapted the stages outlined by Westerlund and Leminen (2011) and featured in the Inmédiats Handbook (Millet et al. 2014): co-creation/co-design, exploration, experimentation and evaluation.

1. **Co-creation/co-design:** This is the ideation stage. With the help of different co-creation tools and methodologies, the participants develop a portfolio of ideas aligned with their desired goals.

2. **Exploration:** With the portfolio of ideas, at this stage the participants explore the ideas in more detail and together reach a consensus on which ideas they would like to pursue. Here, the develop prototypes of the ideas or bring them to life, ready to deploy them to the target population in the next stage.

3. **Experimentation:** At this stage, the participants test the developed prototypes or products with the target population, gathering feedback and insights to evaluate their effectiveness.

4. **Evaluation:** In the final stage, the participants reflect on how their products were received by the target population, assessing whether they reached their intended goals. Any necessary adjustments or adaptations are identified to optimise the project's alignment with the desired outcomes.

The GenB Living Labs were implemented in the second semester of the school year 2022/2023 and specifically from March to June 2023 in Austria, Italy and Slovakia for three age groups each 4 to 8, 9 to 13 and 14 to 19. Each Living Lab was designed to have a minimum of three workshops while the pupils and young adults, together with their teachers and other actors that they decide to involve would also work on their ideas between the three workshops.

Recongnising the participants' limited prior knowledge regarding the topic of bioeconomy, the first workshop of the GenB Living Labs served as an introductory session. Its main aim was to familiarise the participants with the subject matter and its relevance to their everyday lives, all presented in a manner suitable for their age group. With a concise yet impactful approach, the session, only touched on the first stage of Living Labs, co-creation/co-design, ideation.

Nevertheless, during the period between the first and the second workshop, the participants emerged into the co-creation/co-design stage building on the knowledge acquired in the first stage. With the support of their teachers and/or with the staff involved, the children and young adults discussed the key takeaways from the first workshop and embarked brainstorming to generate project ideas for further development within the process.

The second workshop, scheduled approximately two weeks after the first, allowed participants ample time to brainstorm, while ensuring the newly acquired knowledge about bioeconomy remained fresh. Representing the second stage of the Living Labs process, exploration, the second workshop aimed to finalise the collection of

ideas and narrow down the portfolio to feasible projects that could implemented by the group or in smaller teams within the given timeframe. The selected ideas were presented to the group, providing an opportunity for the rest of the participants to suggest changes. Finally, tasks were assigned, and a timeline was established.

During the period leading up to the final workshop, the participants worked in developing their ideas as intended.

The third workshop scheduled at least four weeks after the second, to provide the participants with ample time to finalise their ideas, marked two significant stages in the Living Labs process: exploration and evaluation. Firstly, the exploration stage, involved the presentation of the participants' completed projects to a larger group of their peers and/or to the target audience of their projects, if different. Secondly, after the showcase, the participants then discussed the reception of their projects and considered any necessary adjustments and also shared their experiences of the whole process, representing the evaluation stage of the Living Labs. In cases where time was limited, the evaluation phase could also extend beyond this workshop.

Although this third workshop marked the conclusion of the GenB Living Labs, within the schools or leisure centres, they are highly encouraged to consider potential for further implementation of the developed ideas as well as the integration of the bioeconomy in the future.

GENERAL CONCEPT OF *the living lab*

The GenB Living Labs took place in Austria from April to June 2023, engaging different age groups across two schools. The high school "AHS am Augarten" in Vienna's 2nd district hosted the Living Lab for students aged 14 to 19. Over three workshops, around 20 students from three 7th grade classes, accompanied by two teachers, actively participated in the sessions, which were integrated into the 'Human and Environment' subject curriculum. Meanwhile, the elementary school Südstadt in Maria Enzersdorf, Lower Austria, served as the venue for the Living Labs targeting the 4 to 8 and 9 to 13 age groups. A total of approximately 100 pupils and 7 teachers took part, representing all classes in the school, with the exception of two hindered by time constraints. To accommodate the large number of pupils, two Living Labs were organized for 4 to 8-year-olds, while one was dedicated to the 9 to 13-year-olds.

ACTIVITIES *implemented*

General description of activities implemented.
In the first workshop of the High School Living Lab, students were introduced to the concept of bioeconomy and its challenges, with a specific focus on its connection to the food industry—a subject explored in their "human and environment" curriculum for the semester. In the second workshop, students had the opportunity to present their project ideas, which they had brainstormed during the intervening period. They received support from workshop moderators to further develop their ideas. During the final workshop, students showcased their completed projects and engaged in group reflection on the entire Living Lab process.

The 17-year-old students successfully realised three projects as part of their participation:

1. Educational video series: with videos covering various aspects of the bioeconomy, such as upcycling of clothes, media influence, economic consequences, sustainable energy resources, transportation, and bioeconomy in politics.

2. Elementary school education: teaching an elementary school class about the bioeconomy through theory and hands-on experiments.

3. Sustainable packaging advocacy: sending an information email to the head of a supermarket chain addressing packaging reduction and the potential use of bio-based packaging.

During the first workshop of the elementary school Living Labs, students were introduced to the concept of bioeconomy through the book "What is Bioeconomy?" and a presentation of various related products. They were then encouraged to express their own ideas on the topic through drawing.

From these ideas, the classes collaboratively developed project proposals, which were presented in the second workshop. Additionally, during the second workshop, the students had the chance to engage in hands-on activities at different stations, including painting with natural colours derived from plants and spices, creating seed balls, and playing a memory game focused on the theme of bioeconomy. The final workshop of the Living Labs in the elementary school concluded with a showcase event, where the students' products and projects were exhibited in the auditorium. Representatives from each class took the stage to present their projects to the entire school community, including teachers and staff members.

Following the opening presentations, all students had the opportunity to explore the exhibition, examine their peers' completed projects, and engage in discussions with the workshop moderators to gain deeper insights into the project development process and their overall experience with the Living Labs. The elementary school students successfully realized a variety of projects, including flowerpots and purses crafted from recycled tetra packs and fabric remnants, pencil cases from repurposed plastic bottles, bags from fabric remnants, photo frames decorated with buttons, and a poster showcasing ideas for products derived from biobased materials. In addition, the older students created a bioeconomy magazine and produced a series of informative videos on various aspects of the bioeconomy.

THE LIVING LAB *in numbers*

Number of Living Labs organised (total):	4 Living Labs with 3 workshops each (in total 12 workshops)
Number of activities and experiments implemented (total):	89
Number of students reached (total):	120