

## **The Scale of Commitment - Incipit**

On March 4, the ADI Design Museum hosted the first event in a series of meetings and exhibitions curated by Materially for Milan Design Week 2025. This event served as a preview of the April initiatives, focusing on the measurement of environmental impact and the performance of materials. Below are the key takeaways from the morning, moderated by Emanuele Bompan, director of *Materia Rinnovabile*.

**Omar Degoli**, Head of Environment and Circular Economy at FederlegnoArredo, addressed the challenge of transferring the success of the Ecodesign regulation for electronic products into the new ESPR (Ecodesign for Sustainable Products Regulation). This regulation, which is currently being defined, will cover five sectors, including textiles, furniture, and steel.

Several options are under consideration by the European Commission. One option involves environmental protocols or minimum environmental criteria—sets of non-scientific guidelines that address significant issues within specific product categories, such as furniture. Another approach is measuring the actual characteristics of products, like carbon footprints, to be included in Environmental Product Declarations (EPDs). While this approach has worked for electronic products, it may not be suitable for quality-focused industries like Italian furniture production, which can be less scientifically standardized.

FederlegnoArredo advocates for a system based on technical product standards, a pre-existing corpus of guidelines that could be made more binding. These standards aim to extend product lifecycles and reduce waste, while promoting sustainability without imposing additional burdens on the industry. One of the most innovative aspects of the ESPR is addressing obsolescence.

**Sara Corrado**, Group LCA Lead at Broadview's Center of Excellence for Innovation and Technology, highlighted how Life Cycle Assessment (LCA) has become an essential tool for evaluating products within the company's global portfolio, which includes well-known laminate and coating brands like *Formica* and *Fenix*.

Broadview's sustainability efforts began in 2010 with outsourced LCA studies, and in 2017, the company established a dedicated sustainability department that has since expanded to thirteen people.

LCA was initially used for internal purposes, such as quantifying impacts across the production cycle. More recently, Broadview has expanded its LCA efforts to product-level communication through EPDs, which go beyond carbon footprint measurement. The company also follows an EPD Process Certification, ensuring that its LCA system is reliable and transparent. The lack of unified criteria for secondary data is a significant challenge, particularly regarding energy consumption, which is calculated

differently across reference databases. Broadview welcomes the development of a European-level database to address this issue.

**Lamberto Lamberti**, Head of Sustainability at the Lamberti Group, discussed how measurement is intrinsic to the company's business. Lamberti develops innovative ingredients for various sectors, including energy, agriculture, surface treatment, ceramics, personal care, and natural polymers. Their scientific approach to measurement drives improvements in product performance and sustainability.

Over the last decade, Lamberti has focused on new applications for materials, including lighter, more resistant, and more sustainable options. The company has continued to invest in research and development, including sustainability parameters that are increasingly requested by their customers.

**Serena Gazzo**, Sustainability Data Analysis Manager at Lamberti, explained how the company formed a dedicated internal team for Life Cycle Assessment between 2020 and 2021. The team, consisting of specialists in regulatory certifications, communication, and chemical R&D, helps Lamberti meet eco-design goals by optimizing environmental performance at the R&D stage.

As demand for LCA services has grown—Lamberti has handled 150 requests in the last three years—they are developing a digital platform to streamline the process and update both primary and secondary data efficiently. The organization *Green Chemistry for Sustainability* is also creating a shared database for the chemical sector, which will help increase transparency and data-sharing.

**Marco Pelucchi**, President of AIPEF (Italian Flexible Expanded Polyurethane Association), discussed how polyurethane faces challenges due to "chemophobia"—a lack of understanding about its production processes. He emphasized that polyurethane production does not involve harmful chemical discharges and has undergone extensive research to make it more eco-friendly.

Over the last two decades, solutions have been developed to address the large amounts of waste and by-products generated during production and cutting. Mechanical recycling, which involves shredding polyurethane, is effective for creating high-density agglomerates. However, this method is unsuitable for post-consumer polyurethane waste, which is contaminated both biologically and chemically. Chemical recycling, carried out upstream in the supply chain, can transform waste into polyols, though these polyols currently face performance and cost limitations. A third recycling option is waste-to-energy.

Pelucchi advocated for single-material furniture designs, which can improve the circularity of products. For example, polyurethane of appropriate lift could replace wooden frames in upholstered furniture, ensuring more efficient end-of-life

management. Additionally, reducing the size of polyurethane during transport through vacuum sealing is a significant step toward improving the material's environmental performance.

**Martina Lamperti**, Founder of Krill Design, discussed the challenges that small players face in assessing environmental impact. Krill Design is an innovative start-up focused on solving two key problems: the vast amounts of organic waste generated annually by food and beverage companies and the scarcity of raw materials. The solution Krill Design offers is a new secondary raw material created from organic by-products. This material, called Krill, is biodegradable and compostable, and it is used to create products for the same companies that produce the waste.

Originally made from orange by-products, Krill now includes a diverse range of materials with technical characteristics similar to traditional plastic, but with a more natural appearance and feel. However, scientific validation of Krill's environmental benefits came through a collaboration with Milan Polytechnic. A PhD student conducted a cradle-to-gate impact analysis, measuring the equivalent CO<sub>2</sub> emissions (excluding the use phase). As more customers demand certifications and LCAs, Krill faces challenges in obtaining timely and reliable data for a new material like theirs.

**Andrea Mulloni**, Head of Sustainability at Arper, discussed the company's long-standing commitment to sustainability. Since 2005, Arper has focused on creating low-environmental-impact products. Initially, LCA was used mostly as a compliance tool, but three years ago, Arper shifted its approach to set sustainability goals from the design phase, which accounts for 80% of a product's environmental impact. This change led to the creation of a Sustainability Office, independent of Quality Control, and the development of products like *Catifa Carta*.

*Catifa Carta* is a chair made from twenty-nine layers of craft paper bonded by a bio-based binder derived from linen hemicellulose, making it 100% biogenic while offering performance similar to traditional plywood. The project also focuses on end-of-life solutions, as most furniture returns its CO<sub>2</sub> content to the atmosphere when it decomposes. With *Catifa Carta*, Arper and its partners developed a circular model, collecting disused chairs and transforming them into biochar through pyrolysis. This process prevents CO<sub>2</sub> emissions and creates a material that can be used in construction, industry, and agriculture.