

# Spinlife



SPIN-OFF  
DELL'UNIVERSITÀ  
DI PADOVA

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Spin-Off dell'Università di Padova

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## 1. Objective

This document aims to briefly present the activities carried out by Spin Life srl, spin-off of the University of Padua, in the field of Life Cycle Sustainability Assessment.

This presentation has been prepared by NSBproject to promote Spinlife's partnership in CBE JU and Cluster 6 CircBio proposals.

## 2. General presentation of the Spin-off

Spin Life srl is a SME, spin-off of the University of Padua, born thanks to the many years of experience (30 years) in the field of sustainability of the founding partners, all researchers from the University. Spin Life's approach to the market, therefore, benefits from its specific experiences in the field of sustainable innovation, which allows client organizations to receive assistance that goes beyond a mere consultancy relationship.

The proof of this is highlighted by many activities that, once completed, have become examples of best practice for similar situations.

Just think of the Certification of the Italian Municipality of Sappada, the first in the world according to the UNI ISO 37101 standards, the EMAS registration of the "Polo Turistico di Bibione", a pilot project of the European Union, the first Carbon Footprint product certification carried out in Italy in 2007, as well as the first Water Footprint Certification.

This was possible both because of the high level of expertise of Spin Life's staff and because of the relationship that is immediately established with partners who, from clients, become partners in predominantly innovative projects.

## 3. Experience in Life Cycle Sustainability Assessment

Spin life can count on the experience of its founding partners and collaborators in Life Cycle Sustainability Assessment, which has led the spin-off to carry out more than 300 life cycle studies in the last three years. The skills acquired by the spin-off are of international relevance in the field of sustainable management and the development of Life Cycle Thinking methodologies such as Life Cycle Sustainability Assessment.

In particular, this activity has focused on the development of Life Cycle Analysis methodology to improve its accuracy and reduce uncertainty in the assessment of environmental, economic and social impacts, with particular attention to the integration of decision models and eco-design. The aim is to guide the design and development of new products and processes from a sustainability perspective. Among the main results achieved and activities carried out are:

## Life Cycle Assessment (LCA)

- Development of LCA models to reduce uncertainty and improve the accuracy of environmental impact assessments throughout the life cycle of products and processes.
- Integration of LCA with scenario analysis tools and system dynamics models to support decision-making processes under conditions of uncertainty.
- Application of LCA in key sectors such as the chemical, food, packaging, electronics, and construction industries.

## Sustainability Metrics

- Design and development of environmental footprints such as the Water Scarcity Footprint (AWARE method) and the Carbon Footprint of products and organizations.
- Development of models for the integration of circularity metrics (circularity footprint) and social sustainability (Social LCA) with LCA.
- Participation in UN and ISO working groups for the definition of methodological standards for footprints and sustainability indicators.

## Eco-design and Environmental Communication

- Combination of LCA and Product Environmental Footprint methodologies with eco-design processes according to the ISO 14006 standard.
- Development of tools for the labeling and communication of product environmental performance, in line with ISO standards.

With twenty years of experience, numerous high-impact scientific publications, and the coordination of national and international projects, Spinlife is a reference for the application of advanced sustainability assessment methodologies to support eco-innovation and the transition towards a circular economy.

## 4. Relevant Scientific Papers

1. Manzardo A., Marson A., Zuliani F., Bacenetti J., Scipioni A. Combination of product environmental footprint method and eco-design process according to ISO 14006: The case of an Italian vinery (2021) *Science of the Total Environment*, 799, art. no. 149507
2. Manzardo A., Loss A., Jingzheng R., Zuliani F., Scipioni A. Definition and application of activity portfolio and control/influence approaches in organizational life cycle assessment (2018) *Journal of Cleaner Production*, 184, pp. 264-273
3. Ridoutt B.G., Pfister S., Manzardo A., Bare J., Boulay A.-M., Cherubini F., Fantke P., Frischknecht R., Hauschild M., Henderson A., Jolliet O., Levasseur A., Margni M., McKone T., Michelsen O., Milà i Canals L., Page G., Pant R., Raugei M., Sala S., Verones F. Area of concern: a new paradigm in life cycle assessment for the development of footprint metrics (2016) *International Journal of Life Cycle Assessment*, 21 (2), pp. 276-280
4. Manzardo A., Mazzi A., Loss A., Butler M., Williamson A., Scipioni A. Lessons learned from the application of different water footprint approaches to compare different food packaging alternatives (2016) *Journal of Cleaner Production*, 112, pp. 4657-4666
5. Niero M., Di Felice F., Ren J., Manzardo A., Scipioni A. How can a life cycle inventory parametric model streamline life cycle assessment in the wooden pallet sector? (2014) *International Journal of Life Cycle Assessment*, 19 (4), pp. 901-918
6. Scipioni A., Niero M., Mazzi A., Manzardo A., Piubello S. Significance of the use of non-renewable fossil CED as proxy indicator for screening LCA in the beverage packaging sector (2013) *International Journal of Life Cycle Assessment*, 18 (3), pp. 673-682