

Co-create for affordable and accessible LCA at scale

The case of the Footwear Impact Calculator

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SímaPro



Growing demand for environmental information



Intrinsic motivation to reduce footprints



Changing customer preferences



Pressure from retailers, supply chain partners, investors



New local and international regulations to comply with

How can we
meet this
rising
demand?



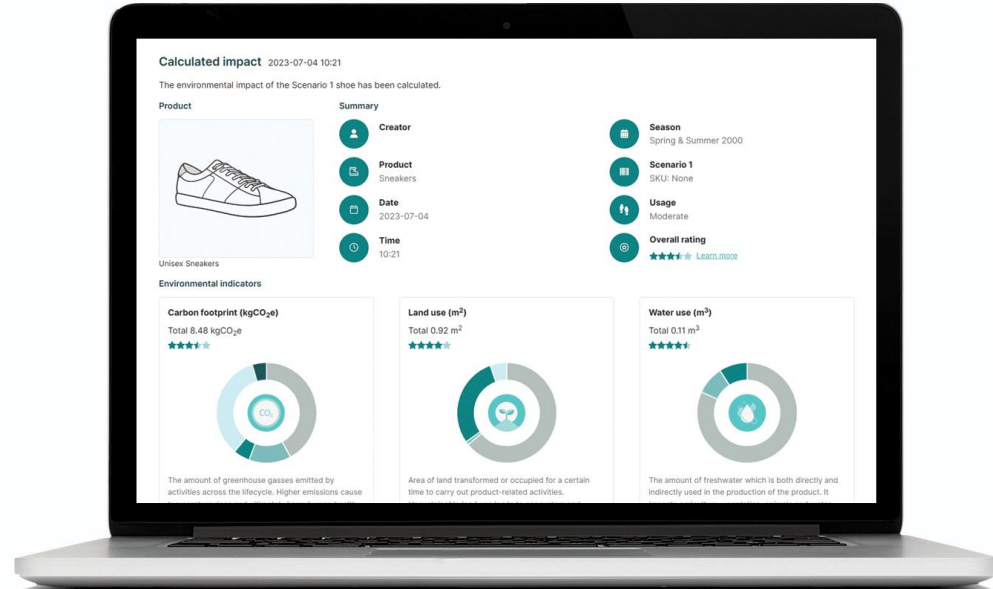
Custom tool: Footprint calculation for the footwear sector 'S

- Eurofins BLC, in partnership with PRé, created a custom tool for the footwear sector powered by SimaPro: the **Footwear Impact Calculator**.
- Eurofins BLC is dedicated to leather, footwear, chemicals, and leather product testing for the footwear sector.
- Various companies from within the footwear industry supported the tool's development by testing and providing feedback.

The Footwear Impact Calculator



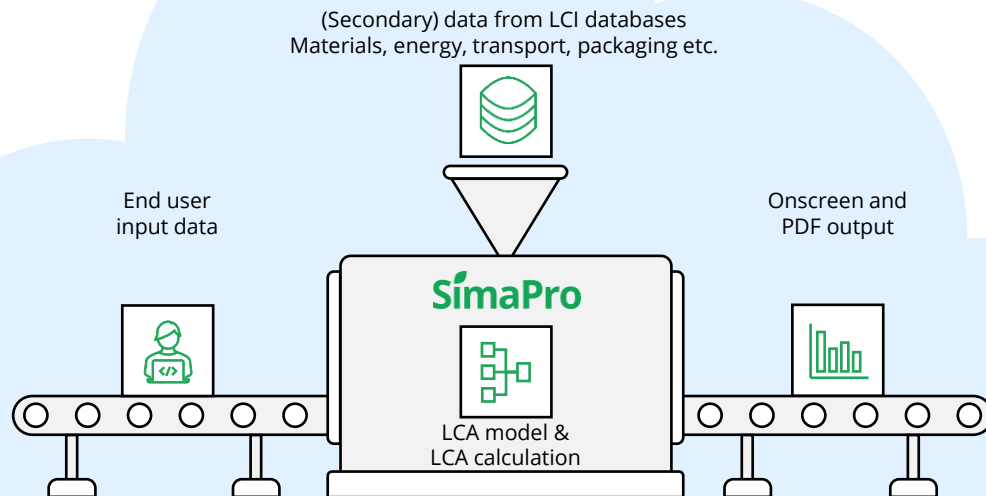
- Sector-specific tool for the footwear sector
- Powered by SimaPro and created in collaboration between PRé and Eurofins BLC
- The LCA model behind the tool largely follows the principles of the draft PEFCR for apparel and footwear
- Reliable, cost-effective and easy way to get sustainability insights



Solution is powered by SimaPro as LCA backend



SimaPro
Synergy



Flexibility in input data

- contains predefined shoe model templates to start from or create your own custom shoe model and part definitions.
- Includes configurable production, usage and end-of-life scenarios



Full control over the used databases

- Based on generic datasets enriched and refined with sector and tool specific datasets
- Easily switch between databases and versions



Scalable calculation of tailored LCA models

- Expert crafted sector specific PEFCR aligned LCA model managed and hosted on the SimaPro (Synergy) platform
- API coupled with custom user interface



Transparent results when you need them

- Insights into different hotspots
- Relevant impact indicators
- Effortless run calculations at desired frequency.
- Review onscreen and PDF based results.



Methodological overview



Methodology	Largely aligned with Apparel & Footwear PEFCR (v1.2)
Functional unit	One use of one pair of shoes
System boundaries	Cradle-to-grave
Multi-functionality	According to Apparel & Footwear PEFCR
Software	SimaPro Synergy
Databases	ecoinvent v3.8
Impact assessment	Carbon footprint (EF 3.1), water use (ReCiPe), land use (ReCiPe)
Intended use	Screening-level tool. Not to replace a full LCA study, advising against making sustainability claims

Why build a sector specific tool?



1. Results in a more intuitive interface design that matches expectations of industry professionals fueling ease of use.
2. Optimizes collection of industry relevant data providing more accurate and actionable insights.
3. Ensures meeting industry unique requirements and standards, in this case, the PEF CR for Apparel and Footwear.

Environmental indicators

Carbon footprint (kgCO₂e)



Total 10.48 kgCO₂e

The amount of greenhouse gasses emitted by activities across the lifecycle. Higher emissions cause temperature rises and ultimately harm human health and ecosystems.

Raw materials	2.18
Manufacturing	1.53
Packaging	0.69
Distribution	5.70
EoL	0.38



Land use (km²)



Total 0.7 m²

Area of land transformed or occupied for a certain time to carry out product-related activities. Unsustainable land use leads to ecosystem and environmental degradation.

Raw materials	0.46
Manufacturing	0.02
Packaging	0.10
Distribution	0.12
EoL	0.00



Water use (m³)



Total 0.37 m³

The amount of freshwater which is both directly and indirectly used in the production of the product. It impacts agriculture, vegetation, animals and water scarcity.

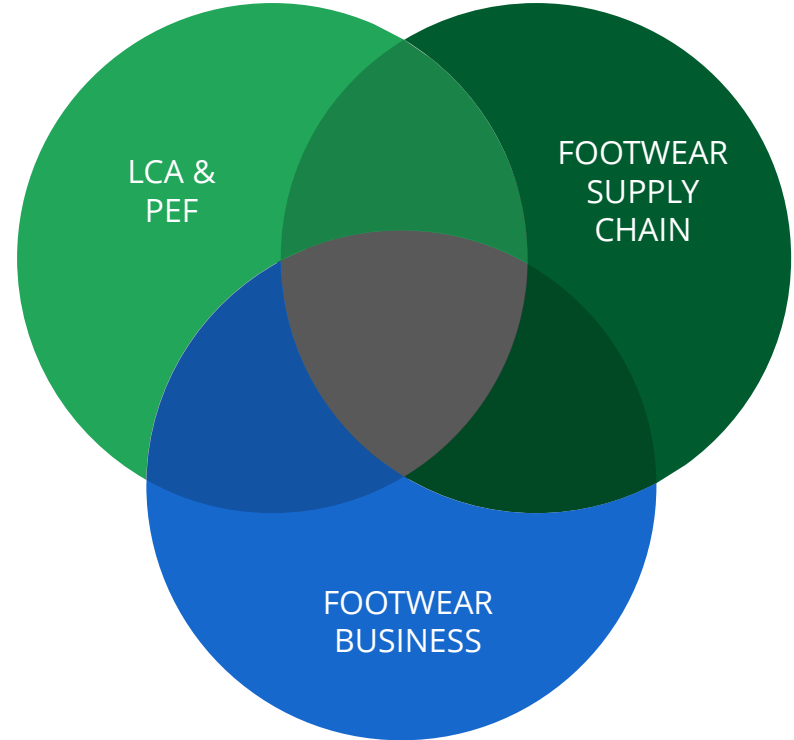
Raw materials	0.35
Manufacturing	0.00
Packaging	0.00
Distribution	0.01
EoL	0.00



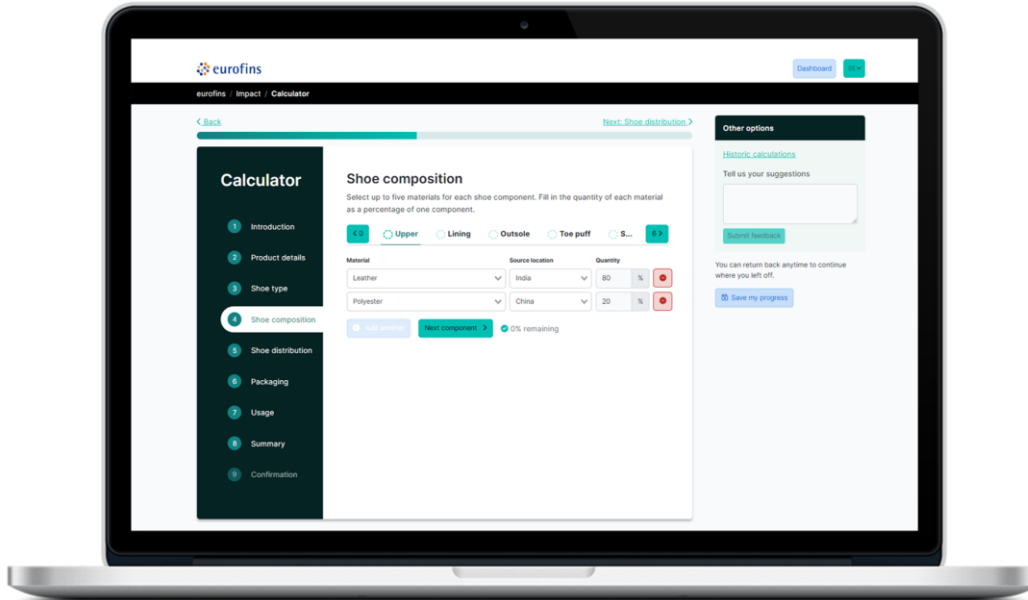
Benefits of co-creation



- Embedded sector expertise
- Faster development
- Stronger stakeholder engagement
- A shared risk and reward model
- Enhanced relevance



Lessons learned from digitization



1. Improved accessibility
2. Enhanced efficiency
3. Cost saving
4. Standardization
5. Easier expansion / wider reach
6. Easier collaboration

“ Working with PRé and using the SimaPro platform, we developed a tool that allows our user to assess the environmental impact of an item of footwear in a matter of minutes. ”

Andrew Hudson, Managing Director at Eurofins BLC

Curious to hear your questions!



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simapro.com

What methodology did we use to build the digital solution

- Plan project
- UX/UI design
- LCA workflow design
- Data Collection
- Build model & app
- Integrate over API
- User testing
- GoLive & support

How to create a custom application

Powered by **Simapro**

Your customers can have specific needs when it comes to sustainability and footprint data e.g., based on type of use, industry or region. A custom tool can provide a tailored solution to fulfill those specific needs. A custom tool can feel as a familiar environment to your customer, capturing a specific workflow with guidance that makes it easy to use. Or it can provide value to the customers customer, resembling the style of the customer. In any of these cases, Simapro Platform provides the engine to enrich the tailored solution with footprint data. There is no need to allocate resources to develop such an engine.

Why create a solution with Simapro as a footprint engine?



Custom UI+UX

An external tool gives you full control over the design of the user interface and user experience. This means colors, fonts, images and overall style, but also type of input fields and presentation of results, for instance.



API - freedom in functionality

A custom application can use and incorporate all Simapro Platform functionality using the Simapro API. From modifying parameters in your LCA model to importing BOM's for immediate impact calculation. The API provides a powerful environmental impact calculation engine and freedom in presenting functionality in the custom application.



You are in charge, we can support

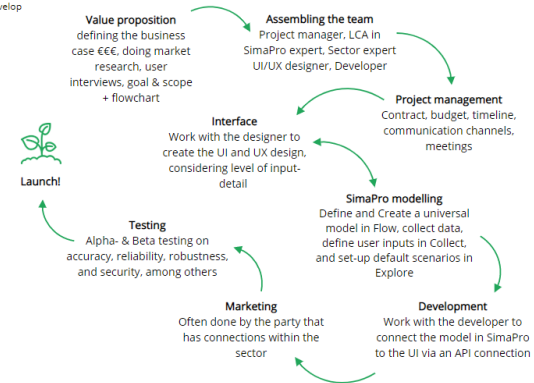
You decide when you update your custom application, what pricing and payment methods you use, the type of support you want to provide, how the tool is integrated at the client side, accessibility, and more. Simapro is just there in the background and PRÉ can provide the technical support.

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Simapro

How to get started

Starting point: you get a request from a customer



How it works



1. Navigate to blcleathertech.com and purchase credits. With one credit, you can perform one impact calculation.
2. Click on 'new calculation' and fill in your product details from the provided shoe templates or use the custom shoe option to define your own design.
3. Choose your shoe, components, and materials. Different levels of customization are possible.
4. Add details about distribution, retail, packaging and use.
5. Click 'calculate' and see the environmental impact results in a report on your screen or in downloadable form in seconds.
6. Find the environmental hotspots of your footwear product and focus on lowering your footprint!
7. Learn more about the modeling and technical approaches behind the tool in the [methodology documentation](#).

Data sources



Life cycle stage	Description	Data source
Raw materials	Raw material production, pre-processing, and transportation between associated facilities.	ecoinvent 3.8
Manufacturing	Heat and electricity required to manufacture a finished product using different manufacturing processes (vulcanization, cold cement, die cutting).	ecoinvent 3.8; Eurofins BLC; Arcenas et al. 2010 ⁵
Material weights	Average weight of each material for a specific component per shoe type.	Eurofins BLC
Transportation (distribution)	Impacts of transport during the distribution stage based on travel distances, transport modes, and transport stages (factory, warehouse, store, etc.).	Google Maps Distance Matrix API; PEFCR
Storage (distribution)	Heat and electricity required to power warehouses that store finished products available for distribution.	PEFCR
Use	Number of uses throughout an entire life cycle per pair of shoes.	Eurofins BLC
End of life	Impact associated with the disposal of a product through incineration and/or landfill. Allocation ratios depend on the country of disposal.	CFF; ecoinvent 3.8

Key assumptions



Assumption	Description	Source
Shoe size	Unisex = 42; Men's = 42; Women's = 37; Children's = 32. Shoe size impacts the weight of materials and the dimensions of packaging.	PEFCR
Material source locations	Countries with missing data for material production used impact data from similar regions.	ecoinvent 3.8
Manufacturing	Specific manufacturing processes per shoe type.	Eurofins BLC
Packaging	Packaging weights and cardboard box surface area per shoe type.	Eurofins BLC
Transportation	Distances between shoe manufacturing factory and first warehouse are inserted by the user. Distances are not city specific. All other distances are default amounts from the PEFCR.	PEFCR; Google Maps Distance Matrix API
Usage	Average number of expected uses and lifetime of a pair of shoes, and what classifies them as 'low,' 'medium,' or 'high' usage.	Eurofins BLC