

This case study is one in a series co-sponsored by Washington Department of Ecology, the Oregon Sustainability Board, and the Oregon Department of Environmental Quality to help companies in the Pacific Northwest understand the challenges and benefits of product environmental footprinting.

# STEELCASE

## measuring and communicating product environmental impacts

Life cycle assessment and Environmental Product Declarations have proved useful tools for Steelcase to identify opportunities for improvement in evaluating and communicating the environmental impacts of its products.



### THE ISSUE

Steelcase, the leading manufacturer of furniture for offices, hospitals and classrooms, takes an insight-led approach to the design and development of its products and solutions. As such, continually exploring new ways to identify opportunities to uncover value for partners and customers is central to its strategy. Environmental footprinting using life cycle assessment (LCA) is viewed as a promising possibility to allow Steelcase to credibly examine the product development process and then communicate results from a new perspective to customers and stakeholders.

Product environmental footprinting using LCA has enabled Steelcase to understand where in its value chain opportunities exist to improve environmental performance, which has helped focus eco-design criteria in product development. The use of LCA has also helped respond to customer requests for environmental performance of products, and has provided a common way to explain and communicate impacts both internally and externally.

# SOLUTION

Steelcase has been actively interested in environmental issues for decades. In the early 1970s, it began to look at issues such as acid rain, site remediation and recycling. This progressed into environmental management in the 1980s, looking at site specific impacts and expanding the pollutants being considered. By the 1990s, life cycle thinking was becoming more prevalent and customers and stakeholders were beginning to express interest in these areas, leading Steelcase to more holistically evaluate impacts across multiple stages of the product life cycle.

Therefore, it was a logical step in Steelcase’s sustainability journey to complete an LCA, carried out in 2004 by measuring the environmental impacts of its Please Chair.

To facilitate communication of LCA information, the solution was to produce Environmental Product Declarations (EPDs), which report summary-level product LCA information, akin to a nutritional label of food products that list nutrient values.



Since its first EPD on its Please Chair, Steelcase has completed over 30 EPDs on a number of different products. The EPD results shown in the table below is an example from a recent EPD for a Steelcase task chair. These EPD results demonstrate the contribution of each life cycle stage of the chair in relation to the whole life cycle, with the use stage having minimal to no impact. This suggests a focus on the impact of material selection and production stages, on which Steelcase has focused its efforts by using these insights.

## Distribution of the Environmental Impacts for the Respective Life Cycle Stages

The figures in this table are rounded up because the potential uncertainties don’t justify the use of more than two significant digits.

IMPACT CATEGORY	UNIT	TOTAL	MATERIALS	PRODUCTION	TRANSPORT	USE	END OF LIFE
GLOBAL WARMING	[kg CO <sub>2</sub> -eq.]	130	62	44	16	NO SIGNIFICANT ENVIRONMENTAL IMPACTS OCCUR.	8.1
ACIDIFICATION	[mol H <sup>+</sup> -eq.]	36	16	13	6.4		0.54
PHOTOCHEMICAL OZONE CREATION	[kg O <sub>3</sub> -eq.]	7.9	2.9	1.8	2.9		0.27
EUTROPHICATION	[kg N -eq.]	0.36	.14	0.12	0.019		0.083
CARCINOGENICS	[CTUh]	0.000017	0.000011	0.0000047	0.00000073		0.00000058

# THE CHALLENGES



## LAYING THE GROUNDWORK FOR THE INDUSTRY

EPDs provide a concise, visually-appealing format for easily communicating the environmental performance of a product. But producing an EPD requires first having a published Product Category Rules (PCR): a set of specific rules that are peer-reviewed, and offer scientifically supported guidance specifying the way the analysis ought to be carried out given the nuances of that product category. Such a PCR of sufficient quality for office furniture did not already exist. Steelcase, with other partners, engaged in a PCR creation process to establish a PCR that could be used by the



## COLLECTING DATA ON STEELCASE VALUE CHAIN ACTIVITY

Data needed for measuring environmental impacts are often difficult to gather, especially from a complex supply chain. Working with procurement staff and the people who manage supply chain relationships is essential for collecting the required data. Many suppliers were supportive and provided the necessary information. Initially Steelcase focused on collecting data from its Tier 1 suppliers, and then expanded to Tier 2.

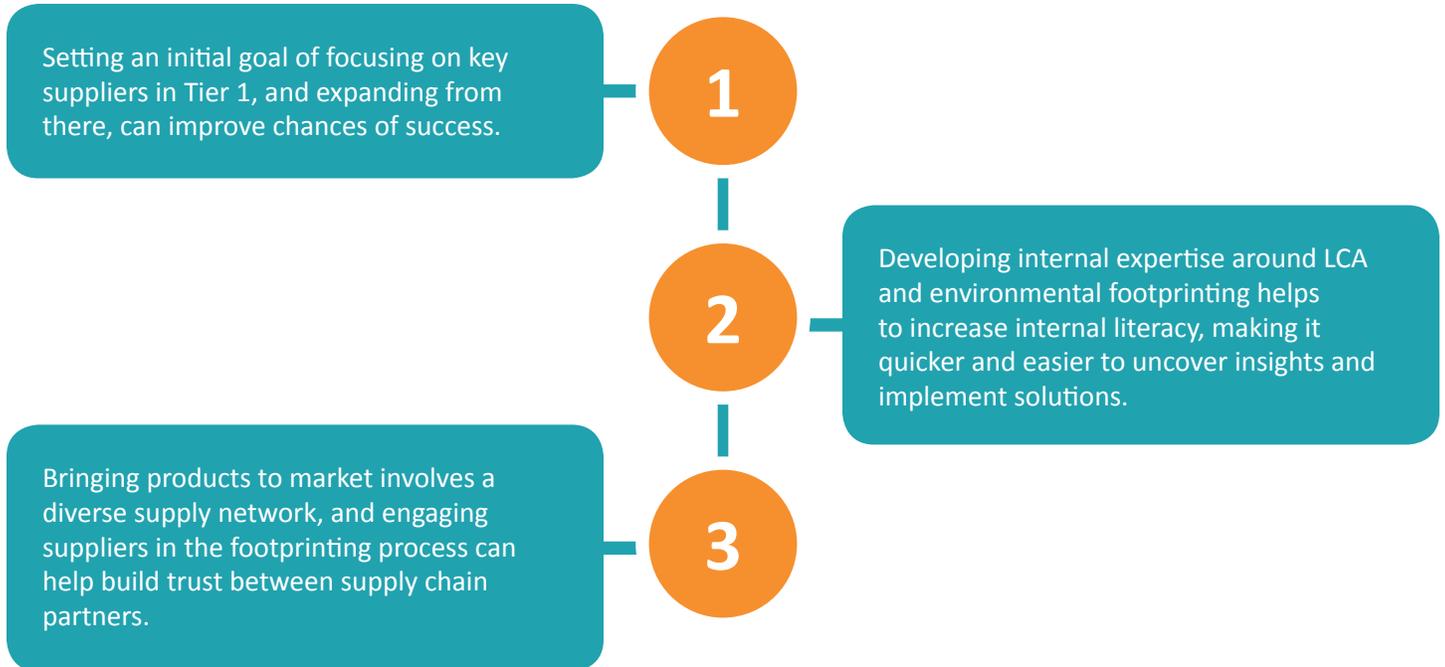


## GETTING VERSED IN LCA AND AVAILABLE RESOURCES

Navigating the complexities of LCA including the tools, background data, and the most appropriate framework or standards to apply can be tricky. It was challenging to reconcile the complexity of a global company with localized supply chains in each region, different product configurations, and other production details. It also took effort to understand what was already being done by the industry as a whole, and where existing information could be leveraged.

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# ADVICE



## RESULTS

Steelcase's LCA practice continues to inform its product development, and provides detailed environmental information to help its customers achieve and communicate their own sustainability goals. Its footprinting efforts have enabled it to:

- Apply a life cycle perspective for material selection and production, providing insights needed to focus on the most impactful activities.
- Focus product design strategies on aspects that have the most impact.
- Produce quantifiable metrics with the ability to show progress over time.
- Provide data-driven perspectives for standards (voluntary or otherwise), using product footprinting exercises as a basis for why focus should be on a specific life cycle area of the product.
- Speak in common terms with internal and external audiences, including customer requests.

## BENEFITS

Apart from the results listed above, Steelcase has observed the following economic and environmental benefits:

- Reduced expenses under its direct operational control (for example, material purchases).
- Reduced environmental impacts of its own production facilities.
- Reduced environmental impact of its suppliers' practices.
- Helped its customers select more environmentally preferable products.