

TECHNIA

PART OF ADDNODE GROUP

# Introduction to sustainable product lifecycle management

## Table of content

- 03** Introduction
- 04** A brief overview  
*Expanding horizons: The holistic approach of sustainable PLM*
- 05** Benefits of sustainable product creation  
*Leveraging sustainability in product development*
- 07** Exploring what drives companies to adopt sustainable practices

# Introduction

Have you ever wondered about the environmental impact of the products you use or the services you consume? From the materials used in production to the energy consumed during transportation, every aspect of a product's lifecycle can have an impact on the environment.

Designing safe and sustainable products requires a new approach to product lifecycle management. Actions for sustainability are not limited to the end of the product's lifecycle but extend throughout the entire journey, from development to manufacturing, maintenance and repurpose. Sustainable product creation is the process of designing and bringing products to market in a way that considers the environmental, social, and economic impacts of those products throughout their entire lifecycle. This holistic perspective ensures that every stage of a product's existence is examined for environmental and social impacts.

In this guide, we'll lead you through the landscape of sustainable product creation, starting with a concise overview that provides insights into the fundamental principles underpinning this transformative approach. Ultimately, we'll delve into the key benefits of sustainable product creation. Lastly, we'll unravel the motivations driving companies to adopt sustainable practices, offering a holistic perspective that sets the stage for a deeper exploration in the next guide you read.

Join us as we navigate the possibilities of sustainable product creation together. Take a moment to reflect on your own choices and consider how, through collective efforts, we can contribute to a more sustainable and environmentally conscious future. Let's embark on this journey towards sustainable practices, exploring the transformative approach that ensures a positive impact on our world at every stage of a product's lifecycle.



# A brief overview

Product lifecycle management (PLM) involves centrally controlling and managing product information, design, and manufacturing processes, fostering collaboration within the company. As a holistic approach to product development, PLM incorporates every aspect of a product's lifecycle – from innovation through to repurposing, reuse and recycling.

## EXPANDING HORIZONS: THE HOLISTIC APPROACH OF SUSTAINABLE PLM

Sustainable product lifecycle management (PLM) goes beyond traditional practices, encompassing a broader spectrum of considerations. It involves evaluating and mitigating the environmental and social impacts associated with a product, from its conception and design to manufacturing, distribution, use, and repurposing. The primary goal is to create products that are not only functional and economically viable but also environmentally responsible and socially ethical.

Efforts to reduce the consumption and carbon footprint of common materials like metals, plastics, cement, batteries, and glass are underway due to their significant contribution to global greenhouse gas emissions. While these materials are everywhere in our daily lives, product simulation emerges as a powerful tool, enabling a focused examination of material choices during the initial design phase. This involves the flexibility to alter material selections and modify product compositions, ultimately minimizing the overall need for materials.





# Benefits of sustainable product creation

Product lifecycle management (PLM) plays a crucial role in addressing global challenges and mitigating environmental impact by promoting sustainable practices throughout the lifecycle of products.

By choosing environmentally friendly materials, considering factors such as recyclability, biodegradability, and reduced environmental impact during extraction and processing, companies can significantly reduce their overall ecological footprint. This proactive approach in material selection aligns with the principles of circular economy, fostering resource efficiency and minimizing waste generation. By prioritizing materials with lower environmental impact, PLM empowers businesses to create products that not only meet market demands but also adhere to sustainability standards.

## **LEVERAGING SUSTAINABILITY IN PRODUCT DEVELOPMENT**

In considering the benefits of sustainable product creation, it becomes evident that developing and manufacturing products with sustainability in mind offers a range of compelling advantages. The question arises: How can we effectively optimize sustainability in product development?

01

**Enhance operational efficiency**  
by leveraging targeted data  
insights into operational, material,  
and waste management.

02

**Seize regulatory opportunities**  
to overcome inevitable  
challenges and stay ahead in  
the competitive landscape.

03

**Reinforce brand reputation**  
with positive publicity that  
distinguishes you from  
competitors and generates  
referrals.

04

**Ensure long-term business  
viability** by incorporating  
innovation, scenario planning,  
and strategic analysis that  
extends beyond mere  
compliance.

05

**Expand into new markets**  
by utilizing sustainable practices  
and targeted marketing  
strategies.

06

**Enhance risk management**  
through the adoption of more  
sustainable practices and  
gaining early insights into  
emerging operational standards.

07

**Fuel innovation**  
by seizing the opportunity to  
challenge production processes  
and reimagine material  
sourcing.

08

**Attract new talent**  
by recruiting and retaining the  
next generation of engineers,  
driving industrial sustainability  
into maturity.

# Exploring what drives companies to adopt sustainable practices

Apart from legal obligations, companies are increasingly driven to adopt sustainable practices to stay competitive in a changing landscape with growing regulations and standards.

Environmental requirements are now crucial parts of tender requests, making it necessary for companies to regularly highlight the origins of their products, details of the supply chain and manufacturing processes. What's currently a choice to support

environmental sustainability is likely to become a requirement in the future. Sustainable product development isn't just an optional approach; it's on track to become a fundamental requirement for every company.



**Competitive advantage:** Adopting sustainable practices can provide a competitive edge, attracting environmentally conscious consumers and investors. It enhances brand reputation and differentiation in the market.



**Regulatory compliance:** Increasingly stringent environmental regulations and standards at local, national, and international levels drive companies to adopt sustainable practices to ensure compliance and avoid legal repercussions.



**Risk mitigation:** Sustainability efforts help companies mitigate risks associated with resource scarcity, climate change, and environmental impacts, safeguarding long-term business operations.



**Supply chain resilience:** Sustainability efforts improve supply chain resilience by addressing environmental and social risks. This is particularly important as companies recognize the interconnectedness of global supply chains.



**Long-term viability:** Companies recognize that sustainability is not just a trend but a critical aspect of long-term business viability. Planning for sustainable practices ensures resilience in the face of evolving economic, social, and environmental challenges.

## ABOUT TECHNIA

# Smarter products faster

Few things are more complex, costly, or time-consuming than bringing new products to market.

In fiercely competitive industries, increased efficiency and transparency are more in demand than ever. That's why we help clients deploy unique solutions that simplify processes, drive product innovation, and shorten time to market.

We're not saying it will always be straightforward. But with the right mix of technology, people, and dedication, we reduce complexity so companies can accelerate and excel.

We're forward-thinking problem solvers, and we love working with ambitious clients. For us, it's about making sure companies overcome barriers on their way to breakthroughs.

It's about bringing smarter products to market faster.

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We take our responsibility to the world around us seriously. TECHNIA is certified according to the ISO standards 9001:2015 and 14001:2015. This guarantees that the way we work with quality and our environmental impact is continuously improved and objectively reviewed.