



BETTER DESIGN, BETTER BUSINESS

(PART TWO)

Embracing Radical Innovation in Product Performance Optimization

Introduction

Product performance improvement has increasingly become a topic in boardroom discussions, extending beyond the confines of engineering departments. At Alvarez & Marsal (A&M), over the past months, we've seen an increase in inquiries focused on this issue. One of the big questions being raised is how to remain competitive and secure profitability as market pressure intensifies, significant technology changes need to be managed, and resources become ever more limited.

For decades, many industries have primarily focused on improving the cost position of their products, an approach that has resulted in incremental performance enhancements. Nowadays, to maintain competitiveness and compliance, it is necessary to embrace innovative, holistic performance improvements throughout the entire value creation process and product lifecycle.

This means integrating requirements such as sustainability, as well as evolving regulations, tariffs, taxes and restrictions, into traditional optimization levers like cost, quality and delivery times, and, most importantly, putting in place the structures and controls to sustain these enhancements. All in an environment of very challenging and swift technological changes. We call this 360° Product Performance.

In this article, the second part in our series focusing on product design, we will explore what is driving the need for radical innovation and how business can accelerate product performance enhancement across the lifecycle through our 360° approach.



The need for radical product innovation

A wave of technological advancements – including electrification, AI, autonomous systems, battery technologies and sustainable energy solutions – is reshaping industries globally (more on this in the next article in this series).

At the same time, society is progressively demanding products aligned with sustainability principles, and many consumers now believe that brands bear as much responsibility for positive change as governments¹.

Regulation is tightening, with the European Union (EU) at the forefront of environmentally focused legislation, including new norms around responsible supply chains, corporate due diligence duty and circularity.

1. <https://www.weforum.org/agenda/2021/05/eco-wakening-consumers-driving-sustainability/>



These dynamics demand a move beyond simply “greening” (e.g. using recycled or recyclable materials) existing products. It calls for radical innovation to develop new products and services that resonate with consumers’ evolving expectations.

Radical innovation is not only an environmental imperative but an economic necessity. As markets mature and resources become scarce, companies that rely solely on incremental improvements risk facing diminishing returns. In contrast, those developing drastically innovative products have yielded significantly greater market success than their peers. Companies like Patagonia (clothing), Ecover (cleaning products), Beyond Meat (food) and Interface (commercial flooring) stand out as examples of businesses that have successfully adopted sustainable design, leveraging this commitment to drive commercial growth and brand influence.

Eco-efficiency: measuring economic and environmental impact

To manage environmental impact in a world growing to around 8.5 billion by 2030², material and energy efficiency must improve considerably.

Eco-efficiency³ is a common method for assessing the total cost and environmental impact of a product during its entire lifecycle. Initially developed by BASF in 1996, it assigns a monetary value to sustainability initiatives, based on the ratio between the economic value⁴ of a product versus its environmental impact. For illustration, halving a product’s ecological footprint – by using recycled materials, for example – would improve eco-efficiency by a factor of two. Doubling the product’s economic value would deliver a factor of four. Incremental improvements through redesigns typically only yield eco-efficiency⁵ improvement factors⁶ of 2 to 4⁷.

To achieve sustainable consumption and preserve resources for future generations, science has argued that over the next 30-50 years, an increase in energy use and material flows by a factor of 10, and an increase in resource efficiency by a factor of 10, are required⁸. Unless consumers can change their behavior and consume less in quantity, the environmental impact of consumption needs to be radically reduced.

Viable actions along the value chain range from consumers consciously thinking about carbon emission from food (100 grammes of protein from beef has a median footprint of 25 kgCO₂eq, the equivalent from peas emits 0.4 kgCO₂eq⁹), to adjustments in logistics (plastic pallets release 50% more emissions than wooden ones¹⁰).

To achieve the necessary factor of 10-20 improvement¹¹, a move towards radical redesign (of product and its lifecycle) is required. This is achieved by combining product cost-reduction with design-for-sustainability (D4S) and redesigning service models built upon circular economy principles.

This entails incorporating the three pillars of sustainability – people, planet, and profit – throughout the product’s complete lifecycle, from design and manufacturing through to use and end-of-life management. Critically, the drive for resource efficiency must extend beyond the traditional cost reduction efforts such as labor productivity.



Addressing the boardroom

Through our work with manufacturing, industrial and consumer clients, we have seen firsthand how product performance directly impacts sustained EBITDA performance. We strongly believe that profitability and sustainability go hand in hand and that, when well-designed, environmentally conscious products deliver bottom-line results for businesses.

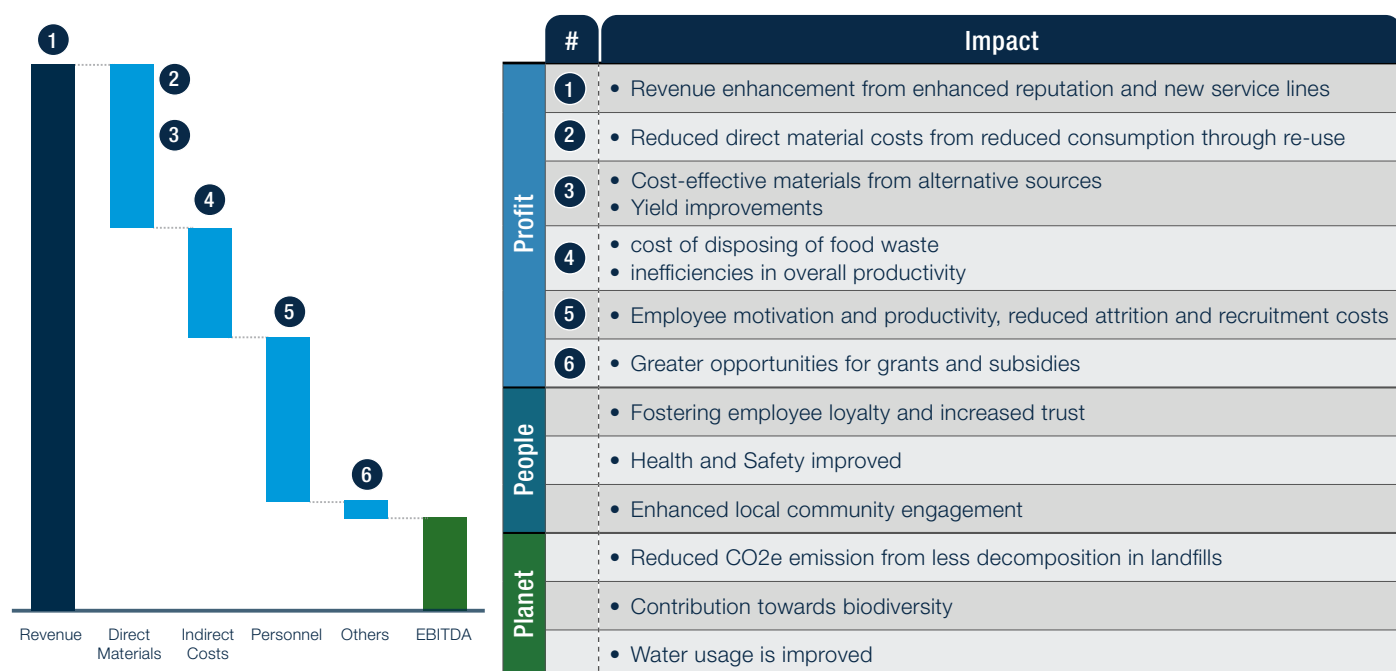
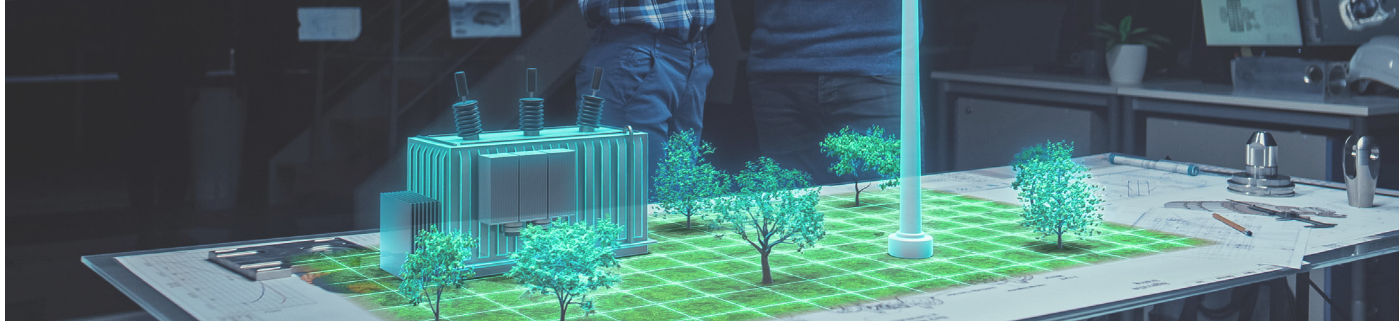


Figure 1: Illustrative P&L impact
Source: A&M

The illustration above outlines examples of cost and revenue benefits from embracing sustainable design and circularity. Replacing direct materials with greener alternatives, if done right, drives down cost of goods sold (COGS). Being a responsible employer can also attract and retain key talent¹², helping keep personnel costs under control.

2. https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesd_pd_2022_wpp_key-messages.pdf
3. <https://www.ecomatters.nl/services/product-footprint/life-cycle-assessment/eco-efficiency-analysis/>
4. Total costs from raw materials, labor, energy, capex, maintenance, and others plus the manufacturer's profit margin. For chemical products, the sales price per unit is commonly used in the calculation.
5. Ehrenfeld, J. R. (2005). "Eco-efficiency: Philosophy, theory and tools". Journal of Industrial Ecology.
6. The term "Factor Four" was introduced by the Rocky Mountain Institute in 1998 and refers hypothetical fourfold increase in "resource productivity", brought about by simultaneously doubling wealth and halving resource consumption. It goes on to illustrate technologies that can deliver the necessary improvements.
7. An effective target to reducing resource and energy use by 50-75% by doubling output and halving input of production.
8. <http://www.factor10-institute.org/about.html>
9. <https://ourworldindata.org/less-meat-or-sustainable-meat>
10. <https://doi.org/10.1016/j.jclepro.2022.132446>
11. The ability to produce the same output with only 5-10% of the impact.
12. <https://www.weforum.org/agenda/2023/04/future-of-jobs-is-green-2023-climate-change-labour-markets/>
13. Six Secrets of Breakthrough Business Models, John Elkington, 2017.



A&M's 360° Product Performance Improvement

A&M teams are often called into situations where traditional approaches to product design have failed to achieve the desired impact or where the disruptions in the respective industries are so huge that piecemeal methods fail. This is typically due to a combination of resource constraints and methodological shortcomings.

Our 360° Product Performance Optimization program offers an integrated approach to improving product performance, one that looks beyond design to embrace product-service systems, bringing out entirely new business prospects such as repairing, recycling, refurbishments and more. The initiative delivers sustained benefits in performance, cost efficiency and sustainability, ensuring faster product break-even and directly enhancing profitability throughout its lifetime.

Recent engagements have delivered revenue improvements in the range of 8% to 25% after a year, and EBITDA improvements of 10% to 40% throughout the product lifecycle.

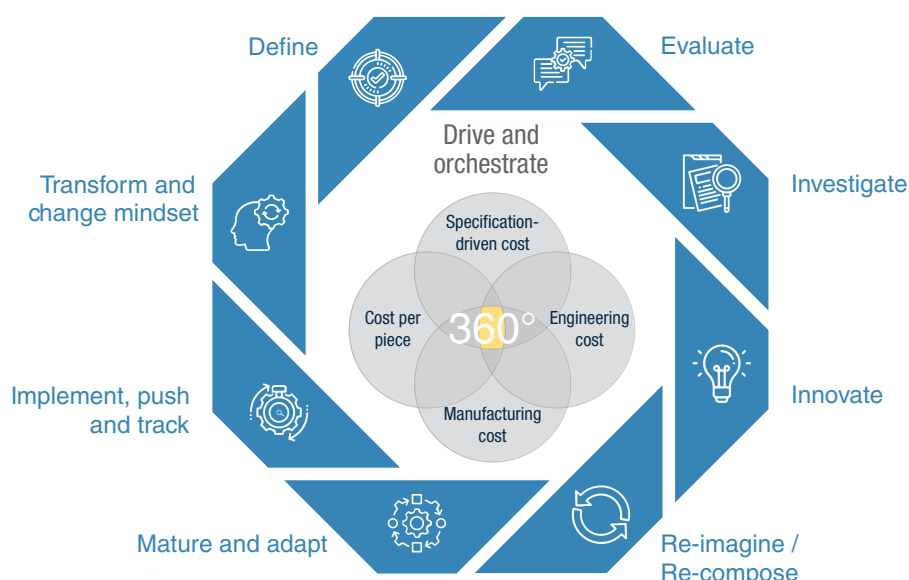


Figure 2: A&M 360° Product Performance Improvement framework

Accelerating product performance enhancement across the lifecycle

Having clear design guidelines that incorporate sustainability aspects streamlines product and process development, as it prevents last-minute changes that can delay product launch. Additionally, achieving required ESG criteria from the outset reduces lifetime costs associated with in-process changes.

Effective front-loading and continuous checkpoints on ESG performance and compliance are vital for successful product design interventions. This enables businesses to proactively address emerging sustainability trends and regulations, resulting in potential improved brand reputation, increased market share and influence over future industry standards.



Here’s a summary of several design sustainability levers across the industrial product lifecycle:

Design	Manufacture	Distribution and Transportation	Product Use	End-of-Life
<ul style="list-style-type: none"> ▪ Prioritize sustainable and ethically sourced materials ▪ Use of recycled materials where possible ▪ Ensuring fair labor practices and safe working conditions 	<ul style="list-style-type: none"> ▪ Uncompromising resource efficiency and waste reduction ▪ Minimized energy and water consumption ▪ Material waste avoidance and closed-loop systems 	<ul style="list-style-type: none"> ▪ Reducing transportation distances ▪ Use of more efficient transportation modes ▪ Alternative packaging ▪ Sourcing components close to point of use 	<ul style="list-style-type: none"> ▪ Built for durability and energy efficiency ▪ Prioritization of proper use and maintenance to extend the product’s life 	<ul style="list-style-type: none"> ▪ Install systems for product recovery, reuse, remanufacturing, and recycling ▪ Ease-of-disassembly ▪ Partnering with recycling facilities to ensure responsible disposal and material recovery
Product-Service Systems				
Consider change of business model, shifting from selling products to providing services. This incentivizes durability, reduces resource consumption, captures value from material recovery and offers possibilities toward smart financing. Successful examples ¹³ range from asset-sharing, usage-based pricing to opening new customer segments through personalization.				

Figure 3: Design levers across the product value chain

New business models and product-service systems may be required to go beyond incremental enhancements. The change in mindset required to drive this must be visible across the entire organization and maintained with regular feedback and encouragement to keep the momentum.

Being able to demonstrate measurable impact is vital for success. Setting a baseline, defining clear targets, and regularly evaluating progress against milestones with stakeholders demonstrates commitment. Eco-efficiency analysis can be used and linked to ESG and other reporting mechanisms, fostering transparency.



Conclusion

Businesses can be powerful catalysts in building a future where commercial success and global sustainability are not competing aims but rather intertwined principles. This requires a change in mindset, from viewing sustainability as a series of constraints, to recognizing it as a potent driver of innovation and long-term value creation.

Sustainable design should not equal higher costs; if done right, sustainably designed products can unlock new markets, attract customers and enhance brand reputation, offering businesses a competitive edge in the marketplace.

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With over 10,000 people providing services across six continents, we deliver tangible results for corporates, boards, private equity firms, law firms and government agencies facing complex challenges. Our senior leaders, and their teams, leverage A&M's restructuring heritage to help companies act decisively, catapult growth and accelerate results. We are experienced operators, world-class consultants, former regulators and industry authorities with a shared commitment to telling clients what's really needed for turning change into a strategic business asset, managing risk and unlocking value at every stage of growth.

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