

**ECO-BRIEF**

**The Environmental Product Life Cycle:  
Environmentally Friendly Design**

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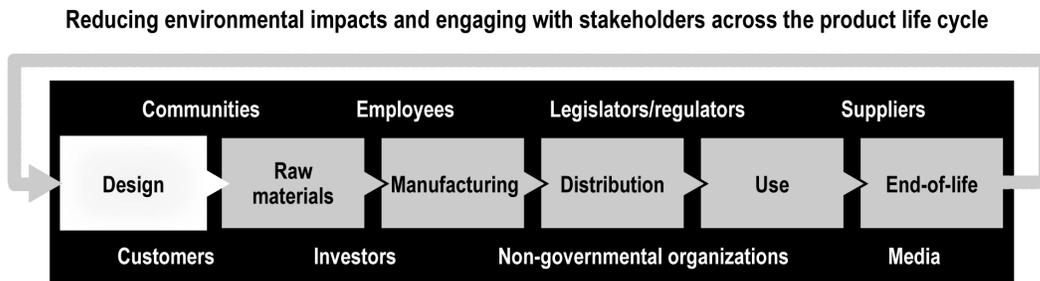
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**EXECUTIVE SUMMARY**

Environmental awareness continues to rise, and customers of all types — consumer, SMB, and enterprise — are realizing that the IT products they acquire and use on a daily basis need to be designed with a different set of criteria in mind. In addition to the environmental concerns critical to the global marketplace, there are some very real business considerations that must be addressed. IT users expect reduced operating costs as well as more predictable disposal costs at the end of the product life cycle. Creative product design is the first step in a product life-cycle strategy with the goal of developing environmentally friendly products for customers of all types. For a graphical depiction of the product life cycle stages, see Figure 1.

**FIGURE 1**

HP Approach to Reducing Environmental Impacts and Engaging Stakeholders Across the Product Life Cycle



Source: IDC, 2007 adapted from HP

## BACKGROUND

Although creative environmental design can be approached in many ways, the goal is quite simple: addressing environmental factors in the design, manufacture, and use of products. While environmental considerations have always been part of the design process, environmental awareness continues to become a more pressing imperative; as a result, the concept has become more important for IT users of all types. The goal is simple in concept, but successfully executing an effective environmental design program can be quite complex. This brief looks at how HP approaches its goal of environmental design and manufacturing without compromising other customer requirements, such as quality, reliability, and price.

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### HP Approach to Environmentally Conscious Product Design

As part of its global citizenship program, HP made an environmental commitment to its customers, raising environmental standards in its supply chain and reducing environmental impacts associated with its products. HP understands that its worldwide environmental impact is primarily felt by customers through the products it brings to market. Additionally, HP realizes that the environmental performance of IT products is largely determined at the design stage. Proactive and creative design can lessen the environmental impact of IT products while providing benefit to a very diverse customer base. HP created a Design for Environment (DfE) Program 15 years ago to raise the profile of its environmental objectives around the world. The DfE initiative has three primary goals:

- ☒ **Materials innovation.** Incorporating materials that have less environmental impact into products while reducing the volume of materials used in these products
- ☒ **Design for recyclability.** Developing products that are simpler to upgrade and/or recycle at their end of life
- ☒ **Energy efficiency.** Decreasing the energy required to manufacture and operate HP products

The European Union (EU) has taken a leadership role in the movement to restrict the use of hazardous substances in products of all types. HP has worked to embrace the EU's Restriction of Hazardous Substances (RoHS) Directives, which control the use of specific materials (lead, mercury, cadmium, hexavalent chromium, and two flame retardants: polybrominated biphenyls [PBB] and polybrominated diphenyl ether [PBDE]) in electrical products sold inside the EU. Similar restrictions on environmentally hazardous materials, which are heavily based on the EU's regulations, are being implemented around the world. Beginning in 1999, HP worked aggressively to ensure that all RoHS regulated materials were eliminated from all HP products. In fact, HP currently meets or exceeds RoHS compliance requirements on a worldwide basis.

The complexity of HP's supply chain combined with the breadth of HP's product line makes environmental design a complicated undertaking. HP cannot meet these objectives alone, and it works closely to implement eco-friendly design processes with its global supply chain. Additionally, HP works closely with a number of industry partners and consortia — including International Electronics Manufacturing Initiative (iNEMI) and High Density Packaging User Group (HDPUG) — to ensure that its aggressive environmental goals are achieved. HP Labs is often part of the innovation process, and HP continues to be involved in the development of international industry standards efforts aimed at incorporating component specifications, testing standards, and material declaration protocols into its product design philosophy.

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## **IDC Analysis**

Beginning with the European Union's RoHS regulations and extending into Asia and the Americas, HP has moved to embrace a new series of environmental regulations that have emerged around the world. The complexity of HP's worldwide product line necessitated the early involvement of and careful coordination with its global supply chain. The result is a set of products that is less costly to deploy, operate, and properly dispose of at the end of their life cycle. IDC believes that HP's product design strategy results in tangible benefits for IT customers of all types — consumer, SMB, and enterprises across all industries.

It is important to point out that HP also faces a number of challenges. IDC continues to believe that many IT users fail to fully recognize the importance that appropriate product design holds for them. Regulatory requirements associated with proper product usage and disposal continue to evolve rapidly. While awareness is clearly rising, HP and other industry participants will need to work carefully to further raise environmental awareness to the point where it becomes a fundamental component of the product selection process. This transformation will take some time, but as regulatory requirements mature and environmental awareness continues to rise, it is clear that IT users will change their attitudes toward the IT products they buy and the suppliers they choose to buy from.

## **CONCLUSION**

Reducing the environmental impact throughout an IT product's life cycle all starts with design. By giving careful consideration to materials selection and manufacturing, process vendors can ensure their products have less need for problematic material removal at their end-of-life stage. Working closely with supply chain partners triggers benefits in procurement of more eco-friendly parts and materials, and designing with power and cooling efficiency in mind reduces demands on energy consumption and on operating costs for the enterprise. IDC believes that HP's effort to include eco-responsibility in its product design stage has yielded tangible environmental and economic benefits for its customers.

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## **HP Products and the Environment Document Series**

This eco-brief is part of a series of IDC documents commissioned by HP to discuss its environmentally aware policies and practices. This series includes a core white paper, *HP Products Built to Protect the Environment*, as well as standalone eco-briefs focusing on specific product areas: product design, manufacturing, power and cooling, and product end of life.

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