

---

# Visible Sustainability: Carbon Label 2.0

## Communicating Enterprise Sustainability Data to Consumers

Daniela Busse  
SAP Labs, LLC  
3420 Hillview Ave.  
Palo Alto, CA 94304 USA  
daniela.busse@sap.com

Wenbo Wang  
SAP Labs, LLC  
3420 Hillview Ave.  
Palo Alto, CA 94304 USA  
wenbo.wang@sap.com

### Abstract

The investment in sustainability research at SAP has been increasing constantly. Of all sustainability parameters, Greenhouse Gas (GHG) emissions produced in the manufacturing, transporting, use, and disposing of a product (aka a product's carbon footprint), might be the most representative. Next to its more formal efforts on its product lines supporting businesses with their sustainability needs, SAP also held an internal design challenge earlier in 2008 encouraging employees to design a "carbon label" that would communicate this carbon footprint to the consumers of products that were manufactured or sold by SAP's customers. In response, we conducted some exploratory field research in the form of user interviews, iterated on a design proposal for this carbon label (including a concept investigation), and presented a solution to effectively communicate a product's carbon to the panel of judges. The final call is still out on this competition, but we posit that the work we did as part of this project shows how a sound user centered design process is critical in making consumer facing sustainability solutions. Given that SAP is one of the major software makers concerned with sustainability solutions for its customers, we hope to firmly situate user centered design practices in the design of upcoming products in SAP's "green suite" of products. We would like to introduce our work to this CHI workshop on defining the role of HCI for sustainability,

invite feedback, and hope to contribute to the broader discussion on this topic.

### Keywords

Carbon label, GHG, carbon footprint, sustainability, ERP, SAP, HCI, user centered design

### ACM Classification Keywords

H5.m. Information interfaces and presentation: HCI.

### Software that supports Businesses' Sustainability Strategies

Research interest into Sustainability at SAP Labs is chiefly propelled by SAP's business interest to support enterprise companies – the main customer of SAP – in their sustainability needs. To date, SAP has focused mostly on products addressing e.g. environmental compliance or other sustainability needs arising from governmental and regulatory pressures on companies in the US and abroad. Increasingly, however, customers appear more open to investigating sustainability solutions that tackle considerations less immediately driven by externally imposed policies, but also e.g. by the recognition that “greener” operations tend to affect the bottom line positively; and most of all, by the realization that a “greener” product or service garners higher quality ratings (especially with regards to corporate social responsibility (CSR) practices) and might be a competitive differentiator in increasingly fierce markets – and potentially even a consumer prerogative.

In order to assess a service or product's sustainability “score” that is to be communicated to the consumer, often non-trivial data orchestration, collection, and

manipulation processes become a necessity. Companies that do not run on an integrated software backbone or enterprise resource planning system (ERP) often face challenges that are not easily overcome in trying to succeed in this. An ERP system that helps to ‘choreograph’ different data streams (from inside the company or external parties such as suppliers), put them in perspective, and analyze their effects on a given criterion gives tremendous support to businesses trying to achieve transparency of their service or product's sustainability metrics. Since SAP software is the ERP system that is used by the majority of businesses worldwide, we can venture the hope that SAP's products can have enormous potential in supporting companies' sustainability strategies on a scale that might just make a difference.

### Background

The integration of sustainability is a strong aid to and irreplaceable chain of interaction design. Sustainability Interaction Design (SID) is crucial to the ecology balance, our collective future and social welfare. The goal of SID is maintaining the symbiotic relations between human culture and biosphere. Researches on mainly focus on two major areas: “(i) sustainability through design – how interactive systems can be used to promote more sustainable behaviors and (ii) sustainability in design – how sustainability can be used as a critical lens in the design of interactive technologies.” [1]

### Introduction

As interaction designers, we hope to facilitate sustainability through design. We focus on helping raise the consciousness of ecology balance, while a current

dilemma is that people are either not aware of the importance of sustainability or not having enough incentives to take actions.

The carbon footprint is a clear and popular parameter for sustainability. Carbon label is a voluntary movement of different industries and countries aiming to describe the amount of CO<sub>2</sub>e but many manufacturers, retailers and consumers from United Kingdom, France as well as Japan have begun to adopt the concept, implement the carbon label and anticipate the impact on the market. More encouragingly, there is plenty of space of improvement for the carbon label.

An excellent example is US Energy Star label. The EPA says "In 2004 alone, Americans, with the help of ENERGY STAR, saved enough energy to power 24 million homes and avoid greenhouse gas emissions equivalent to those from 20 million cars - all while saving \$10 billion."



Figure 1. Energy Star Logo, taken from <http://www.energystar.gov/>

At the beginning of 2008, SAP held a design challenge on the design of a "carbon label". We responded to this

competition with a proposal of a carbon label that is dedicated to improving effective communication of carbon footprint and awareness of sustainability – and that followed a user centered design process in its inception.

### User Research

Several interviews with users with varying relationships to "sustainability" were conducted. During our interviews, several important findings and user needs were identified. For instance, users pondered the reason for more 'sustainability transparency':

*"Business doesn't want to be criticized by the public by how green they are, the risk of being not green enough"* – Team lead of non-profit company

Or, when asked how they would ideally like to get to this sustainability information internally, they proposed:

*"[like a]Facebook concept – a place where people can go to find some information, but more than a website. More transparent and visible."* - Associate Director of Global IT Services - Fortune 500 Company

After significant background research and more than 10 user interviews, we identified as one of the critical user need the fact that consumers need to get an integrated overview of the ecological backdrop of the product they are about to buy – to put it simply, they need to see sustainability information not in disconnected data points that they would need to make sense of themselves (consumer knowledge in this area has not yet reached the general maturity level of, say, identifying food calories) – instead, they need one clear indication of the overall impact this product had,

has, and will have on the environment through its production, use, and disposal. Next to a (physical) label on the product itself, the need for an online portal version of information access was needed, as well as a software solution for the actual product manufacturers or retailers, tracking and monitoring their products' carbon footprints.

### Persona and Scenario

Based on our interviews, we created three personas and related scenarios: Green Follower, Conscientious Operator and Green Rebel. For instance, here is a sample of Tom, the Green Follower.

*Persona, Green Follower with a cause: Thomas Smith*

*Tom is a mid-aged American history teacher living in the suburbs of a big city with his wife and three teenaged children. He commutes 30 miles to work everyday. He is not technical savvy but he has always been conscious of the environment and has good sense of environment protection, sparing no effort closing the light when unneeded, recycling the paper and reduce overall household/office waste.*



*Tom wants to improve his green efforts, but doesn't know how to implement them. The only thing he is familiar with is that as a vegetarian, he prefers organic food even it's more expensive. He often wishes there were easier signals and guidelines out there to help him proceed. Depending on his perspective of brand and his preference, Tom very selectively chooses what he buys.*

Scenario snippet:

*Tom uses the mobile app to get a precise carbon label data of certain product during shopping. He needs to be signaled on what's important.*

### Proposed Design: the Label

To visualize the data for easy-comprehension of consumers, we restated several guidelines and ideas for the label: it should be simple, conveying general carbon data within first sight. The logo will be printed on product or posted on the shopping page of online stores. By using this label we hope to influence the shopping decisions of consumers. For instance, one pound of organic vegetable's carbon data is likely be greener than non-organic vegetable, despite the fact that it's more pricy. This label may give consumer more incentives to purchase organic, or more generally environmentally friendly, product.

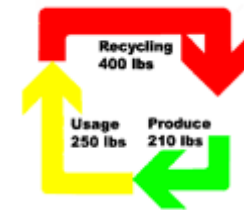


Figure 2. SAP Carbon Label Mockup

Next to the label we also designed the online application that consumers can go to for more detailed investigation of carbon data behind a product, or while shopping online, and we also sketched out ideas for a Facebook application, and how the products APIs could be used for a mobile Google mash-up, for full effect.

Future work includes usability evaluations of the current proposals and further iterations.

### Conclusion

We already saw the impact of current awareness in the increasing popularity of organic foods, hybrid cars, and other environmentally friendly consumption choices [2]. However, the dilemma of not enough awareness being translated into action remains to be solved. SAP carbon

### Acknowledgements

We thank SAP UX team who contributed to SAP Green Suite.

### Reference:

[1] Kristin Hanks, William Odom, David Roedl, Eli Blevis, Sustainable Millennials: attitudes towards

label solution is technically, economically and culturally feasible, and with solid user centered design, its adoption also has become more likely.

“Going green” is an essential part of corporate and social responsibility and SAP has been working toward this for a number of years. Our SAP carbon label and SAP Green Suite serves to help raise public awareness and helps translate awareness into actions.

sustainability and the material effects of interactive technologies, 2008

[2] Footprints Home  
<http://research.stepgreen.org/>