

# 53 AWARE

Toward a Sustainable Economy by Informing Consumer Purchases

## Motivation:

American consumers make purchasing decisions about huge numbers of products every year based primarily on easily-observable factors such as price, packaging, and brand. The lack of convenient, accessible information about the social and environmental impact of products and their producers results in such concerns being ignored by consumers, and thus undervalued in the marketplace. Corporations, working to stay competitive and following economic incentives, often compromise social and environmental responsibility in pursuit of reduced cost and increased market share.

## Approach:

Provide consumers with quick and simple access to customizable information about the social and environmental characteristics of products and their producers on demand and at the point of purchase. Informing consumer decisions will impact purchasing habits. Sufficient changes in purchase patterns can create market forces and provide economic incentives for companies to put more emphasis on social and environmental performance.

## Prototypes: *Engineering, Industrial Design*

Student teams designed and developed conceptual and functional prototypes to demonstrate different forms that AWARE can take



## Study: *Marketing Research, Business*

Our survey results suggest that people are willing to pay more for products that have better social and environmental ratings if the information is available at the point of purchase

Product	Green (16.7%)	Yellow (16.5%)	Orange (0%)	Red (0%)
Detergent	16.7%	16.5%	0%	0%
Juice	11.7%	11.7%	11.7%	0%
Cleaner	33.3%	24.7%	16.7%	0%

Median Price Premium for Company Environmental Ratings



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Faculty Advisor: Steven J. Skerlos



## AWARE-PDA: *Computer Science*

The AWARE-PDA prototype has a database of product and producer information. Try scanning a product.

Provides product environmental ratings based on LCA data, if available

User selects EDIP, Eco Indicator, or Eco Points aggregation systems

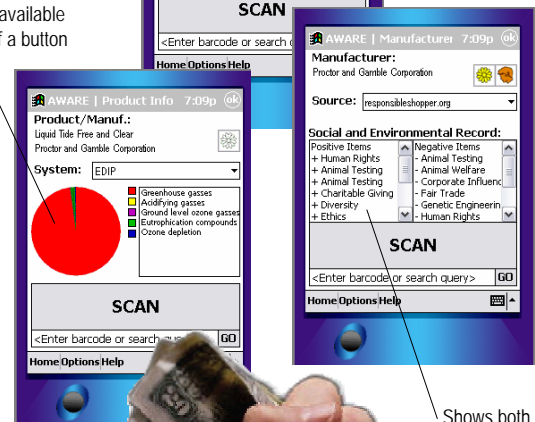
Users can easily compare products or manufacturers

Detailed data behind the ratings is available at the touch of a button

Scan product barcode

Provides ratings of company social and environmental responsibility

Each user selects the watchdog group that matches her value system



Shows both positive and negative issues



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## Student Teams:

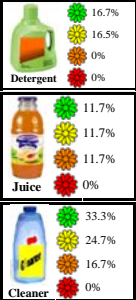
### Marketing 618:

#### Survey Design and Analysis (Fall 2004)

**People:** Scott Jamison, Pierre Baudot, Mitsuki Sato, Abhishek Roy, Gabriel Zhou, Jeremy Michalek (client), Professor Fred Feinberg (instructor)



#### Median premium for each company environmental rating:



**Project:** Design and implement a survey to determine the extent to which access to information about the social and environmental performance of products and their producers would affect consumer behavior.

**Method:** To reduce survey bias, different survey respondents were shown products with different characteristics and asked to price each product. Median responses were compared across respondents.

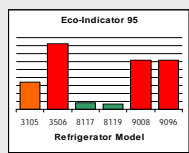
**Results:** Price premiums (i.e.: the additional amount customers will pay) for products with social and environmental performance ratings were estimated from 1100 respondents for a handful of products. Customers were consistently willing to pay significant premiums to buy products with environmental characteristics and to buy from companies rated as being more responsible. Selected data is shown here using color-coded company ratings from the watchdog group Co-op America.

**Conclusions:** The survey provided strong evidence that consumers state an expectation to pay premiums for green products from responsible companies if the information is there. Further studies are needed to determine the extent to which this survey data matches market behavior.

### Mechanical Engineering 490:

#### Independent Study 01 (Spring 2005)

**People:** Katie Kerfoot, Jeremy Michalek (facilitator), Professor Steven Skerlos (instructor)



**Project:** Research, analyze, and develop product-specific environmental information systems for AWARE. Identify potential issues, make recommendations, and compile data for sample products to use in the PDA prototype created by Garlin Gilchrist (ME490 project). Also, assess the availability of producer-level information from watchdog groups.

**Results:** Product-specific data compiled for refrigerators, detergents, and printer cartridges based on available information. Aggregation metrics calculated based on Eco-Indicator 95, 99, EDIP, and Eco Points methods. Multiple layers of information provided.

**Conclusions:** While it is not possible to objectively aggregate environmental impact into a single rating, several aggregation schemes do exist, and allowing consumers to choose among them while giving access to layers of information can provide useful product-level data. While publicly available product-level data is currently scarce in the US, such data does exist in Europe, and applications such as AWARE that make use of product-level data could act to drive data collection in the future.

### Mechanical Engineering 490:

#### Independent Study 02 (Spring 2005)

**People:** Garlin Gilchrist II, Jeremy Michalek (facilitator), W. Ross Morrow (graphic design), Professor Steven Skerlos (instructor)



**Project:** Develop a functional PDA barcode scanner prototype that will provide (1) producer-level data about the scanned product from Co-op America's Responsible Shopper database and (2) product-level data for the products compiled by Katie Kerfoot (ME490 project).

**Results:** A PocketPC prototype was successfully developed for a database of products and companies using an existing scanner accessory. The software can also be used without the barcode scanner to look up information manually.

**Conclusions:** The prototype demonstrates the AWARE concept and can be used to assess usability and identify areas for improvement to make AWARE more attractive and more likely to be used. The prototype can also be used to measure the extent to which access to information affects consumer behavior and creates sufficient market conditions for change.

### Art and Design 441:

#### Studio Project (Spring 2005)

**People:** Dena Bai, Kirsten Climer, Elizabeth Fagan, Evan Fulford, Sabina Rahaman, Brian Rhee, Ryan Wainwright, Jeremy Michalek (client), Professor Jan-Henrik Anderson (instructor)



**Project:** Explore innovative conceptual design possibilities for AWARE and build aesthetic prototypes.

**Results:** Several concepts were explored for variations on style, interface, and dual-use functionality.

**Conclusions:** Different target markets could be reached with different design concepts, for example, a 'badge of honor' theme to help the owner communicate pride about her/his commitment to social responsibility.

### Mechanical Engineering 450:

#### Design and Manufacturing III

##### (Spring 2005)

**People:** Dan Bartz, Halil Hamut, Dannielle Sita, Tyson Smith, Jeremy Michalek (client), Professor Steven Skerlos (instructor)



**Project:** Develop a functional prototype for a small, portable, inexpensive, "keychain" version of AWARE, and explore other potential design alternatives.

**Results:** Concept explored and oversized functional prototype of keychain concept initiated with separate housing to show scale of the final product. Cart-mounting developed for the PDA concept. Cellular phone scanner concept developed and prototyped with a small data set.

**Conclusions:** Cellular phone concept allows greater flexibility to make AWARE attractive to average consumers. Key chain concept could be an attractive way to reduce cost, although it can provide only aggregated information.

### Mechanical Engineering 589:

#### Eco-Design and Manufacturing (Fall 2004)

**People:** Arnaud Bizard, Brett Lee, Karen Putterman, Professor Steven Skerlos (instructor)



**Project:** Study environmental labeling programs and report on appropriateness for AWARE

**Results:** Reviewed existing labeling systems and mapped out preliminary AWARE interface sketches

**Conclusions:** More transparency is needed in the marketplace in order to provide objective and effective product-level information via AWARE.

### Engineering 490: Engineering for

#### Community (Spring 2005)

**People:** Michael Miller, Juan Novella, Annisha Russell, Coriel Greene, Miguel Verdejo (facilitator), Shauna Puhl (facilitator), Jeremy Michalek (client), Professor William Schultz (instructor)



**Project:** Study the current AWARE direction and assess impact from a community perspective. Provide recommendations and develop a semester project of appropriate scope, for example, developing a prototype or doing research on the information that AWARE may provide.

**Results:** Developed a website to compile efforts on the AWARE project and created a wristband campaign concept for publicity. <http://www-personal.umich.edu/~juampisn/aware%20main.htm>