

Topic 7: Product as source of competitive advantage

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Environmental market and marketing

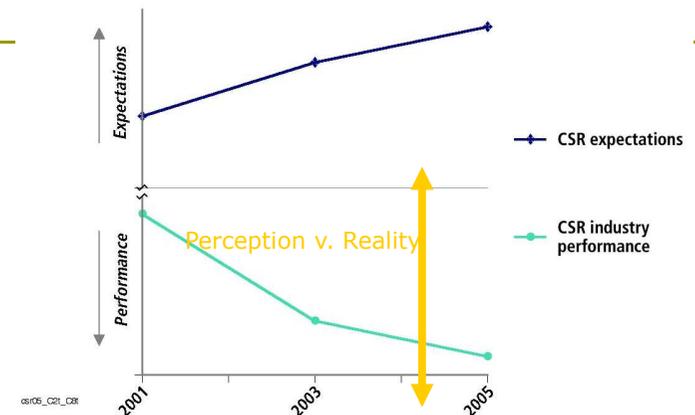
What is an eco-label?

- A label on a product that expresses one or more environmental or energy concepts.

Why labels?

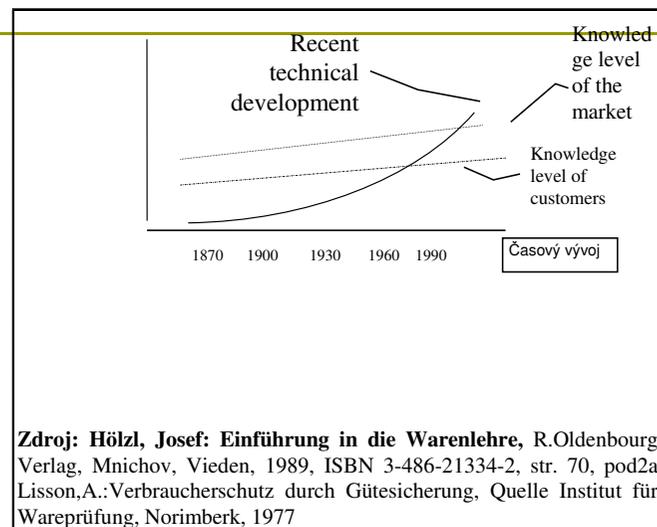
- Global economy
- Rational Choice Theory
- Ingrained psychological effects

Gap of information perception



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Information situation on the market



Confirmation of product attributes

- Information asymmetry by quality perception:
- By objective attributes exists asymmetry in favor of supply side (Are really declared attributes fulfilled?)
- By subjective quality characteristics is supply side in a disadvantage (What people want? What are real demand side requirements?)

Forms of expression of information asymmetry (according Principal-agent theory)

- Hidden characteristics – before purchase unobserved but may subsequently be known - captive product pricing, declared products based on trust
- Hidden action- attributes affected by demand without possibility of subsequent identification – improvements of product without proof
- Hidden intention- influend by supply, for demand unidentified

Hidden information

- One form of information asymmetry occurs when one party to a transaction knows the quality of a good/service and the other party does not
- In health insurance, the purchaser knows his state of health, the insurer does not
- For used cars, the seller knows the quality of the car, the buyer does not
- Job applicants know their quality as workers, the potential employer does not

Adverse selection

- When information is hidden, we get "*adverse selection*"
- • Adverse selection arises when high-quality products, and high-quality customers, *are forced out of the market*
- • This this entirely due the operation of the market, we regard this non-availability of highquality products, and high-quality customers, as *market failure*
- • George Akerlof, in his classic paper "The Market for Lemons" explained why this happened

Signalling to Overcome Adverse Selection

- The seller of high quality products can send a *signal* of quality
- Reputation - **image, prestige creating credibility by declaration of co-operation**
- Warranties - risk of poor quality is limited by producers responsibility
- Informative Advertising
- Recommendation
- Labelling, certification and conformity assessment

Overcoming information asymmetry

- Warranty and guarantee –
 - Important have economic analysis of cost increase caused by extension of warranty
 - Risk of misleading perception of size of guarantee
 - Risk of credibility of too long guarantee period
- Reputation and references
 - Especially important by B2B
 - References work with similar principles as brand extension
 - Transfer of quality perception and image between company and partners exists

Problems with Signalling

- A Signal should be credible
- A signal should separate high and low quality sellers
 - A signal sent by a seller of a high quality product should not also be capable of being sent by the seller of a low quality product
 - A signal should not be too costly for high quality sellers to send

Separating Equilibrium

- Sellers of low quality products find it more costly to send a signal (a warranty on a car) than sellers of high quality products
- • If the signal is pitched sufficiently high (a oneyear warranty), sellers of low quality products cannot afford to send this signal but sellers of high quality products can
- • So the signal (a one year warranty) separates sellers of low and high quality products

Types of Labels with indirect environmental informative value

- Energy efficiency labels
- “Food miles”
- Carbon foot-printing

Energy-efficiency Labels

- Energy efficiency labels list the rate of energy used to accomplish a particular task.
- Examples of energy efficiency labels include those on appliances, fuel-efficiency of cars, and florescent light bulbs.

- An energy efficiency label from the EU.

Energy		Fridge-Freezer
Manufacturer Model		
More efficient		A
A		
B		
C		
D		
E		
F		
G		
Less efficient		
Energy consumption kWh/year (Based on standard test results for 24h)		325
<small>Actual consumption will depend on how the appliance is used and where it is located</small>		
Fresh food volume l		190
Frozen food volume l		126

Noise (dB(A) re 1 pW)		
<small>Further information is contained in product brochures</small>		
<small>Norm EN 153 May 1999 Refrigerator Label Directive 84/255/EEC</small>		

Energy Star

- Energy Star is a certification program of the US Environmental Protection Agency and the US Department of Energy.



Energy Star

- Appliances and building materials with an "Energy Star" label meet federal standards of high energy efficiency. By designing products which meet this standard, companies reap the benefit of getting this designation on their products which are more desirable to some audiences than are those without.

Automobile Emissions Stickers

- EPA has long mandated fuel economy stickers on new automobiles sold in the US, but the stickers contained only minimal information.
- The fuel economy figures were also much higher than what drivers actually experienced.

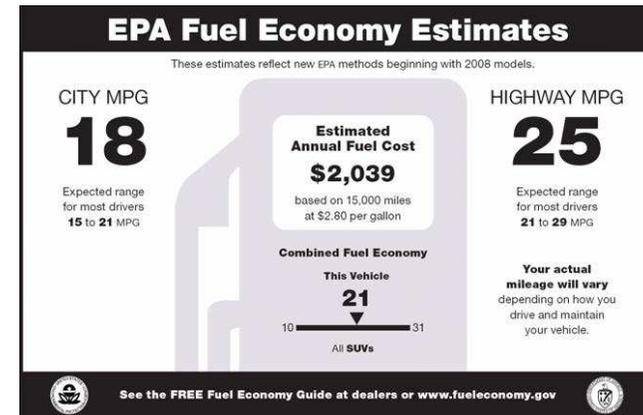
Automobile Emissions Stickers

- Starting with the 2008 year models, new automobiles sold in the US will have re-designed EPA emissions stickers. These stickers will display fuel costs more prominently and compare each vehicle's fuel economy to the rest of its class. The redesign is expected to aid car buyers in selecting more fuel efficient cars by highlighting the annual fuel costs and incorporating those costs into the total cost of the vehicle.

Automobile Emissions Stickers

- Notably, the new stickers are not associated with any new fuel economy standards for automakers – fleets are free to be as inefficient as they were before the new stickers.

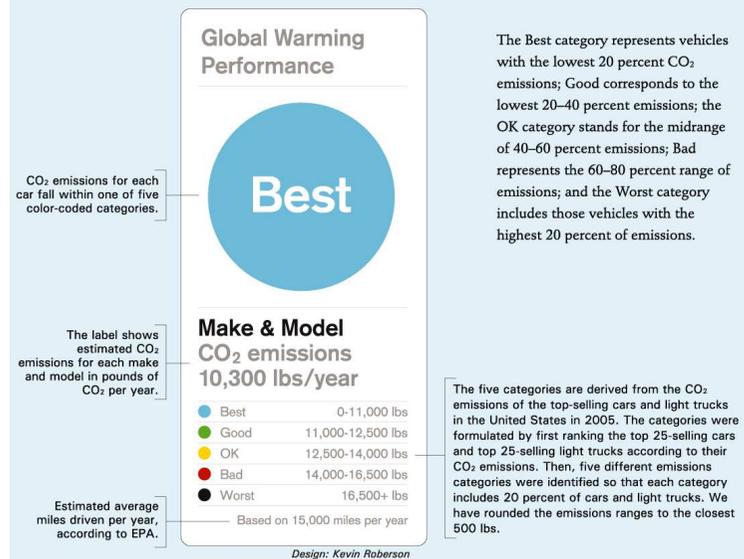
The EPA Sticker



California Stickers

- California is poised to require labels detailing average carbon emissions on all new cars sold in the state, starting with the 2009 models. The California Air Resources Board is expected to approve the stickers in June 2007.
- The stickers will include an estimate of the annual carbon emissions of that vehicle. The information will likely be incorporated with EPA's fuel economy and exhaust-emission labels.

ANATOMY OF A LABEL



Proposed Cloned Food Labels

- ❑ The California legislature is voting on a bill that would require foods from cloned livestock to be labeled as such.
- ❑ California as an early adopter?

“Food Miles”

- ❑ At the most basic level, “food miles” calculates the distance traveled by a food product, or a product’s components, to reach the point of sales.
- ❑ “Food miles” is one way for consumers to prefer locally-produced foods over distantly-produced, often air-transported foods.

Carbon Foot-printing

- ❑ Carbon footprint is a measure of the carbon – a greenhouse gas – emitted into the atmosphere as a result of some product, mechanism, or activity.

Carbon offsetting

- ❑ Carbon offsetting is the process of reducing or neutralizing the net carbon emissions of an individual or other entity by other actions. The intended purpose of this reduction is to combat global warming.
- ❑ Offsetting is often coupled with carbon foot-printing to determine how much carbon must be offset.

Direct environmental Labeling Initiatives - typology

- Mandatory Labeling Requirements
 - Eco-labels are sometimes mandated by a governmental body or trade association.
- Voluntary Private Initiative
 - Corporations have recently, and increasing numbers, planned or set internal goals and standards for eco-labeling.
- Certification Programs
 - Non-profit organizations and occasionally government agencies set standards for eco-labels.
 - Examples include Fair Trade, Quality Assurance International, and USDA Organic.

Qualities of a good eco-label

- Gains the attention of shoppers.
- Well-presented information that does not burden or delay shoppers.
- Information that comes from a trustworthy source.
- Information is communicated to people in language and terms they can understand.
 - Labels must compensate for the lack of expert scientific knowledge in the majority of the populace.

Green labels – normative references

- ISO 14020 - Environmental labels and declarations - General principles
- ISO 14021 - Self Declared Environmental Claims, 1999 (Type II labels / declarations)
- ISO 14024 - Type I Environmental Labelling – Principles and Procedures, 1999
- ISO 14025 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures

International Organisation for Standardisation (ISO)

- Type I: voluntary, multiple criteria based third-party practitioner programmes that award labels based on life cycle considerations (Germany's Blue Angel, Nordic White Swan)
- Type II: informative environmental self declaration claims ('organically-grown', 'energy-efficient', 'ozone-friendly')
- Type III: quantified product information labels based on independent verification using preset indices ('eco-toxic', 'biodegradable')

Definition: Environmental Label

- ❑ Any label describing or identifying environment-related characteristics of products or services
- ❑ Also referred to as “green label” or “ecolabel”
- ❑ Goals:
 - Mark products or services as environmentally preferable to their counterparts so consumers can make decisions based on the product’s or service’s environmental impact.
 - Provide market advantage to environmentally sound goods and services
 - Assure consumers products have met strict criteria set by an independent organization

Types of Ecolabels

- ❑ *Seals of Approval:* awarded by a neutral or independent organization after certain requirements have been met. Identify products or services less harmful to the environment than similar ones without the seal.
- ❑ *Information Labels:* provided by manufacturer or a commissioned party, list individual characteristics without giving an overall approval of the product as environmentally benign or preferable. Include disclosure labels, such as report cards and hazard/warning labels, and report cards

Environmental Label Programs

Country/Country Group	Environmental Label	Start Date
Germany	Blue Angel (Blauer Engel)	1977
Canada	Environmental Choice	1988
Nordic Countries	Nordic Swan	1989
Japan	Eco Mark	1989
Sweden	Good Environmental Choice	1990
USA	Green Seal	1990
USA	Scientific Certification Systems	1990
New Zealand	Environmental Choice	1990
France	NF Environment	1991
Austria	Environmental Label	1991
India	Ecomark	1991
Australia	Environmental Choice Australia	1991
European Union	EU Eco-Label	1992
The Netherlands	Stichting Milieukeur (Ecolabel)	1992
Singapore	Green Labeling Scheme	1992
Korea	Eco-Mark	1992
USA	EPA Energy Star	1992
Spain	Aenor Medioambiental	1993
Croatia	Environmental Label	1993
The Czech Republic	Eco-Label	1994
Lithuania	Eco-Label	1995
China	Environmental Label	1995



Ecological Aspects and Criteria

- ❑ *Ecological aspects*: the areas in which a product influences the environment
 - resource consumption; use of hazardous substances, emissions into air, water, soil; energy efficiency; generation of noise; waste relevance; economic efficiency
- ❑ *Ecological criteria*: requirements a product must fulfill and the means to judge the ecological impact of the product within the corresponding environmental areas. Demonstrates “environmental friendliness” of the product. Based on product life cycle analysis (PLCA).

Multinational Initiatives

- ❑ ISO/TC 207 Environmental Management (1991)
 - International Standards Organization (Geneva)
 - Goal: Standardize environmental management tools and systems
 - Environmental Labeling Subcommittee (SC3): standardize first-party (self-declaration) practices and set guiding principles for third-party certification programs

Multinational Initiatives

- ❑ European Union Eco-Label (March 1992)
 - Council Regulation: must be implemented in each country
 - Use of label is not compulsory, national programs can coexist along with EU 
 - Targeted at consumer goods, not at manufacturers or companies. 200 products to-date

EU Eco-Label Products

- ❑ Denmark: copying paper, writing paper, toilet paper, kitchen rolls, building insulation, textiles
- ❑ France: paints and varnishes, batteries and accumulators, shampoos
- ❑ Germany: detergents, dishwashing agents, household cleaning agents
- ❑ Italy: packaging, refrigerators and freezers, ceramic tiles
- ❑ The Netherlands: shoes, cat litter
- ❑ United Kingdom: dishwashers, washing machines, hairsprays, deodorants, light bulbs



Existing Product Groups - EU Label

<i>Product group</i>	<i>Published in the Official Journal of the European Union</i>
Revised criteria for washing machines	L 191 of 01 August 1996
Dishwashers	L 198 of 07 August 1993
Soil improvers	L 364 of 31 December 1994
Tissue paper	L 019 of 24 January 1998
Laundry detergents	L 217 of 13 September 1995
Single-ended lightbulbs	L 302 of 15 December 1995
Indoor paints and varnishes	L 4 of 06 January 1996
Bed-linen and T-shirts	L 116 of 11 May 1996
Double-ended lightbulbs	L 128 of 29 May 1996
Copying paper	L 192 of 02 August 1996
Refrigerators	L 323 of 13 December 1996



■ Nordic Environmental Labeling System (1989)

- Finland, Norway, Sweden, Iceland. Denmark participates in the EU program
- Ecological criteria developed for 29 product groups and being developed for 15 product groups. Over 650 products carry the label
- Companies must submit detailed documentation plus proof of test by independent laboratories to the national environmental labeling organization in their own country
- Label awarded in one country can be used in others
- Labeling organization has right to carry out periodic inspections



Existing Product Groups - Nordic Swan

List - May 1998

- [All purpose cleaners](#)
- [Closed toilet systems](#)
- [Batteries](#)
- [Care care products](#)
- [Diapers](#)
- [Building boards](#)
- [Dishwashing detergents](#)
- [Floorings](#)
- [Lawnmowers](#)
- [Floore care products](#)
- [Handdishwashing detergents](#)
- [Chain lubricants](#)
- [Composters](#)
- [Copying machines](#)
- [Envelopes](#)
- [Adhesives](#)
- [Tissue](#)
- [Wooden Furniture and fitments](#)
- [Oilburners/boiler combinations](#)
- [Personal computers](#)
- [Detergents for sanitary facilities](#)
- [Writing instruments](#)
- [Shampoo & soap](#)
- [System for towels in dispensers](#)
- [Textiles](#)
- [Toner cartridges](#)
- [Printing paper](#)
- [Printed matter](#)
- [Detergents for textiles](#)



Approved Products - Nordic Swan

Approved criteria (Number of licenses)

Adhesives (3)	Lawnmovers (9)
All purpose cleaners (34)	Light sources
Building materials: chipboard fibre board and gypsum board (9)	Marine engines
Batteries, Primary (6)	Oil burners & oilburner/boiler combinations (2)
Batteries, Rechargeable (7)	Paper envelopes (10)
Car care products (11)	Personal computers (6)
Chain lubricants (1)	Printed papers (178)
Chemical deicers	Printing papers (75)
Closed toilet systems (3)	Printers & Telefaxes
Coffee filters	Refrigerators, freezers
Composters (10)	Shampoo & Soap (5)
Copying machines (13)	System for towels in dispensers (2)
Correction fluids	Textile detergents (43)
Detergents for sanitary facilities (17)	Textiles (5)
Diapers/nappies (5)	Tissue paper (11)
Diapers Textile	Toner cartridges (17)
Dishwashing machines	Wallcoverings
Female sanitary products	Washing machines
Flooring materials (6)	Wooden furniture and fitments (7)
Floor care products (8)	Writing instruments (2)
Grease proof paper	Windows
Hand dishwashing detergents (7)	



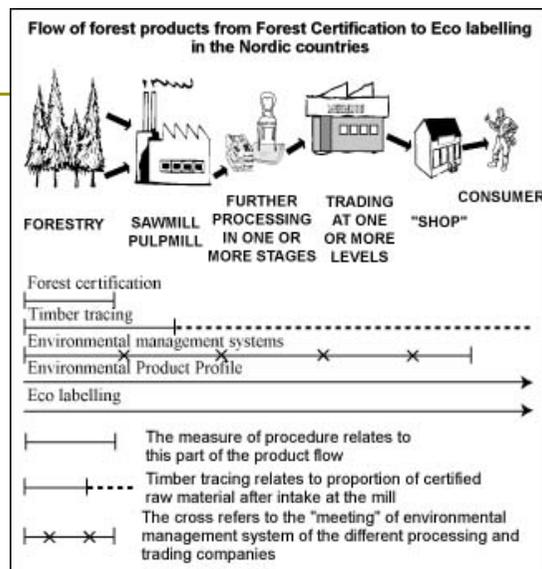
Germany: The Blue Angel



- ❑ World's first labeling program: 1977
- ❑ Includes 78 product groups, 3900 products carry the label
- ❑ Each product group has its own LCA matrix, includes safety and usability. Criteria are valid for 3 years
- ❑ Most important characteristics vary by product:
 - Paper: % recycled paper content
 - Lawn mowers: noise emissions
- ❑ Available to foreign manufacturers: 15% at present

U.S. EcoLabels

- ❑ Green Seal
- ❑ Scientific Certification Systems
- ❑ US EPA Energy Star
- ❑ SmartWood Forest Certification



Common Features of Labeling Programs

- ❑ Participation in all programs is voluntary
- ❑ Almost all created by governments or independent organizations
- ❑ Structure generally has two parts:
 - Definition of product groups and ecological criteria
 - Application, approval, and award process
- ❑ Applications must include proof of compliance
- ❑ Labels are generally awarded for a limited time, 2-3 years
- ❑ License fees are generally 0.15-0.50% of annual turnover

Labeling Program Differences

- Ecological criteria for product groups
 - Based on complete LCA: EU
 - Based on one or two criteria: India, Korea
 - In between (best): Austria, Canada, New Zealand
- Industry Support
 - Australia's Environmental Choice program started in 1991, discontinued in 1994 due to lack of support

Conclusions

- Environmental labeling is rapidly becoming a reality through national and multinational programs
- Programs are based on (1) selecting product groups and criteria, and (2) an application and awards process
- Product Life Cycle Assessment (PLCA) is the key analysis tool
- Building materials are included in ecolabeling schemes but only a few products are included
- More extensive scrutiny of building materials needed, especially end-of-life fate and health impacts
- Specifiers and purchasers of building materials would benefit greatly from expanded ecolabeling of these materials