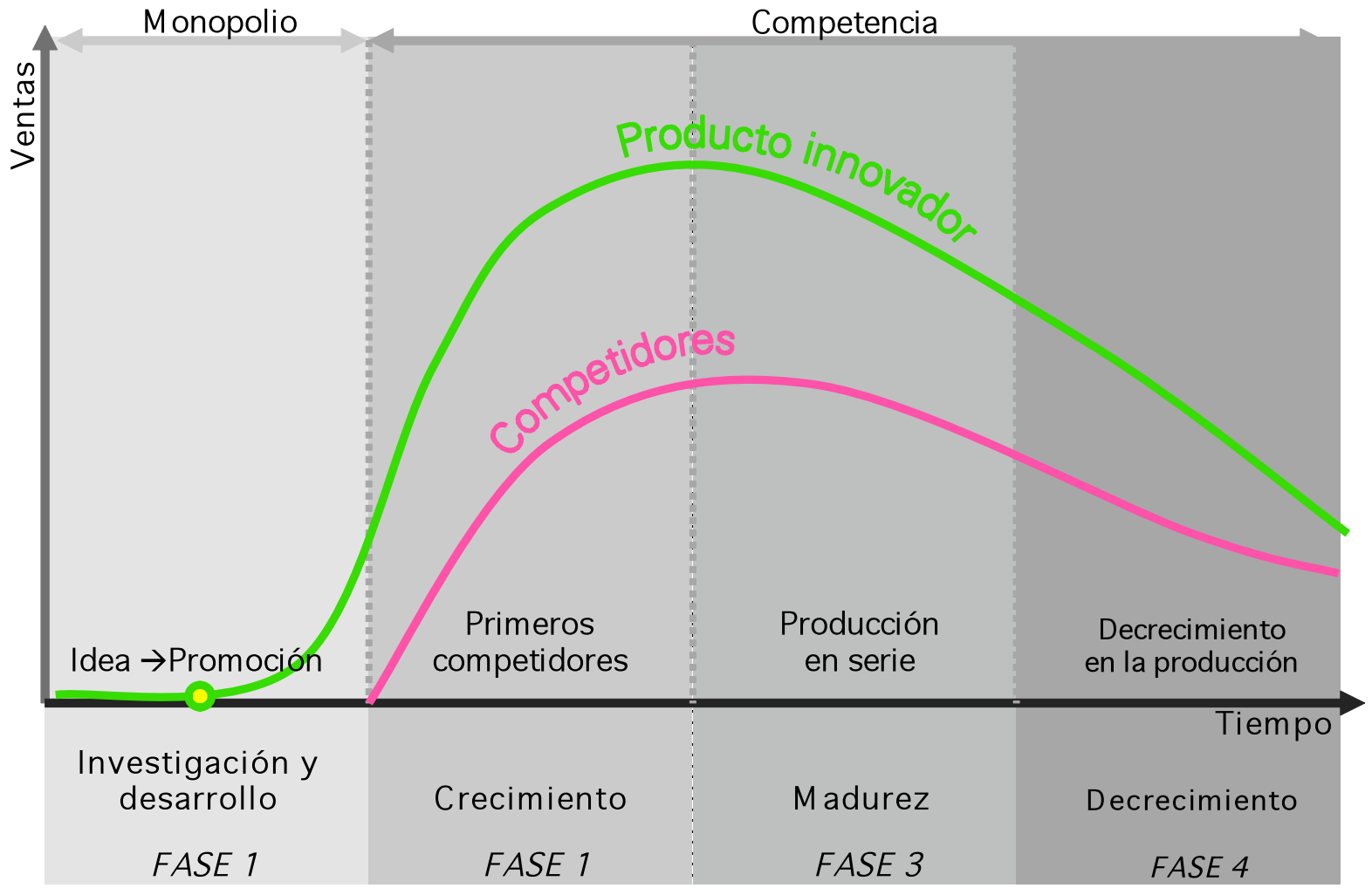
MEDIO AMBIENTE Y DISTRIBUCIÓN

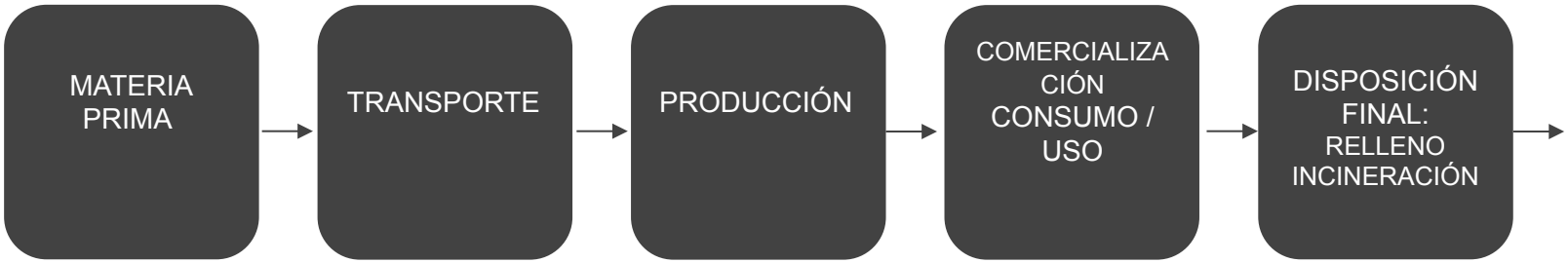
Universidad de los Andes

Segundo semestre 2009

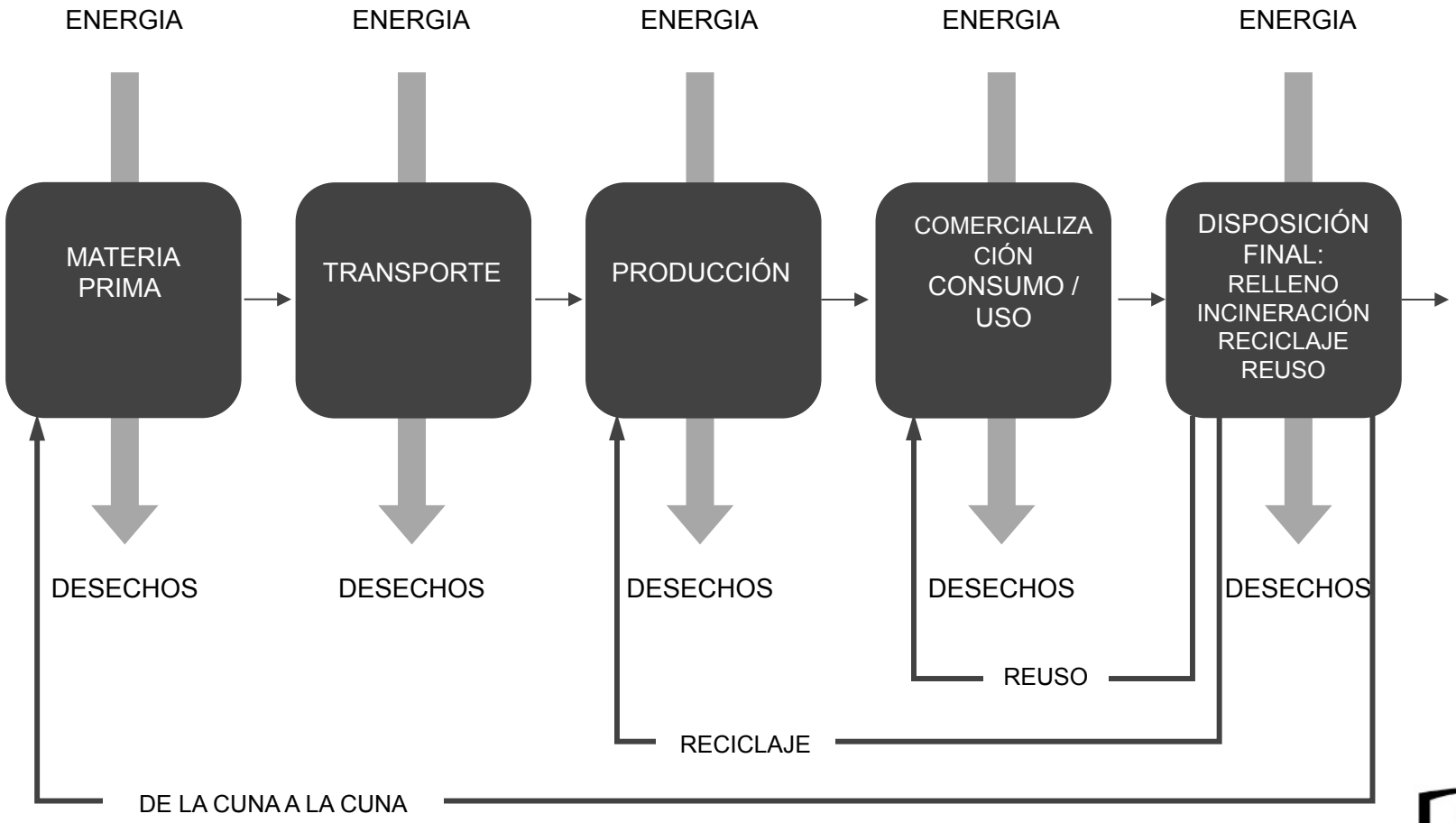
CICLO DE VIDA COMERCIAL

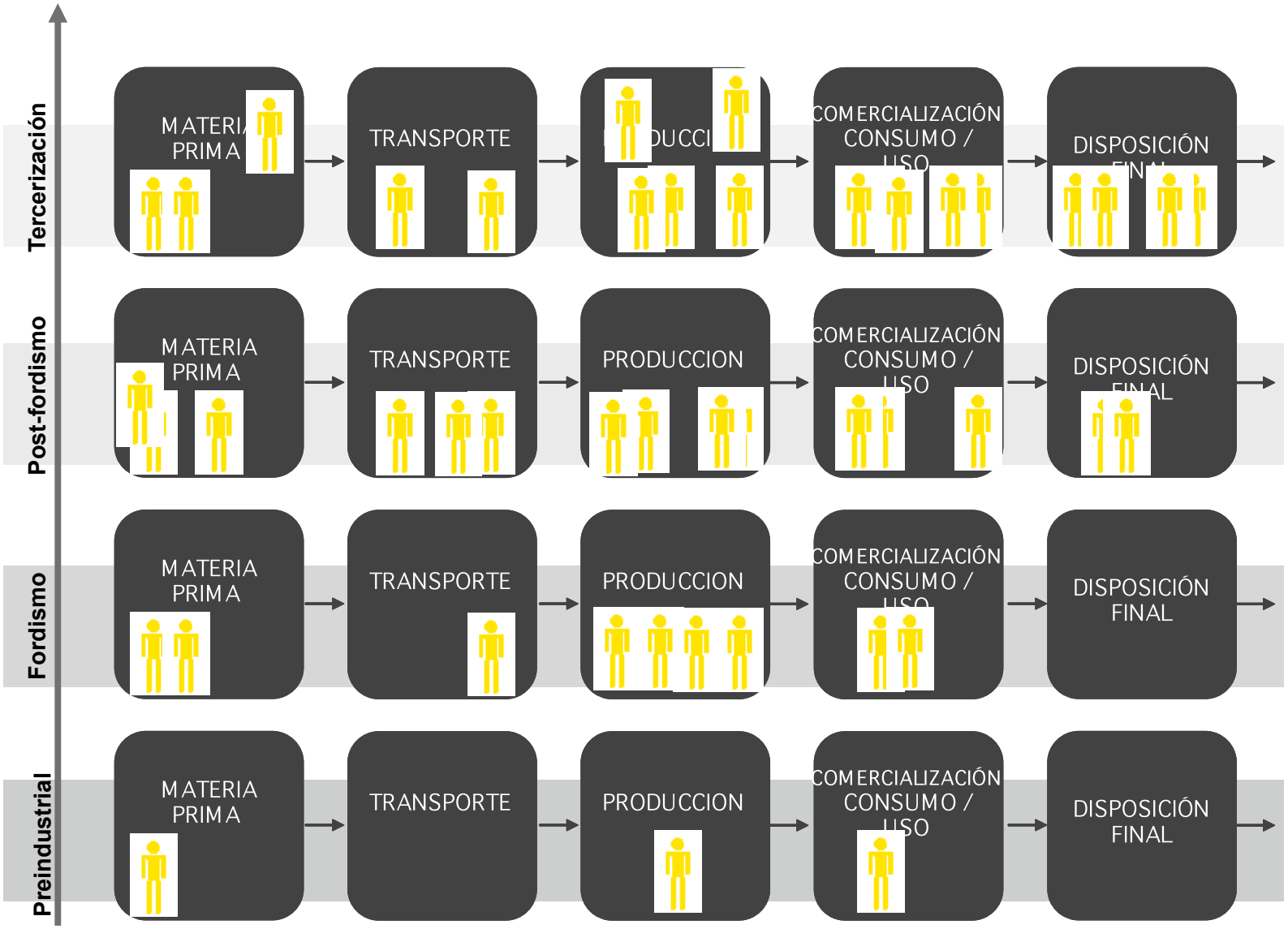


CICLO DE VIDA CRADLE TO GRAVE

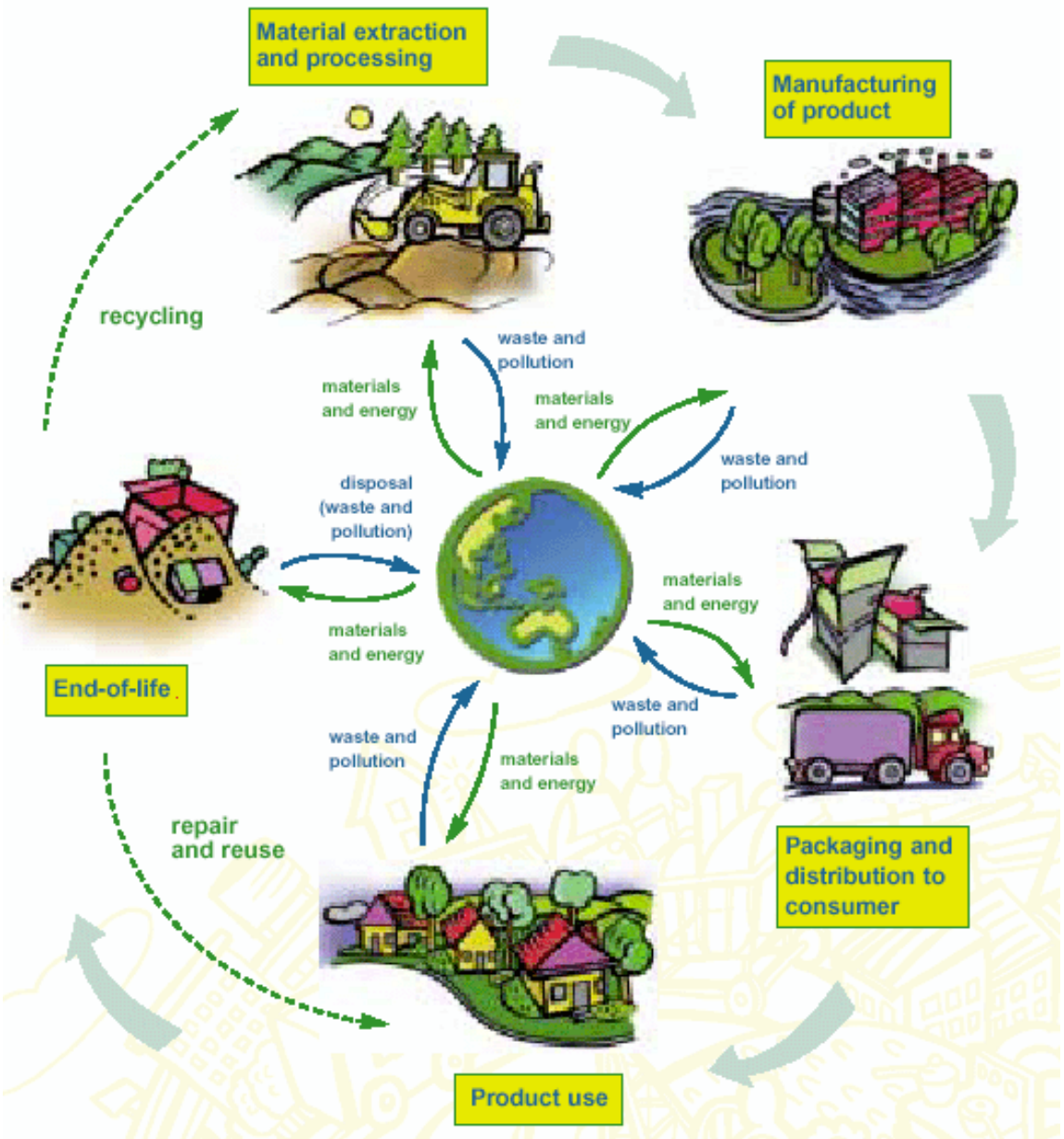


CICLO DE VIDA CRADLE 2 CRADLE

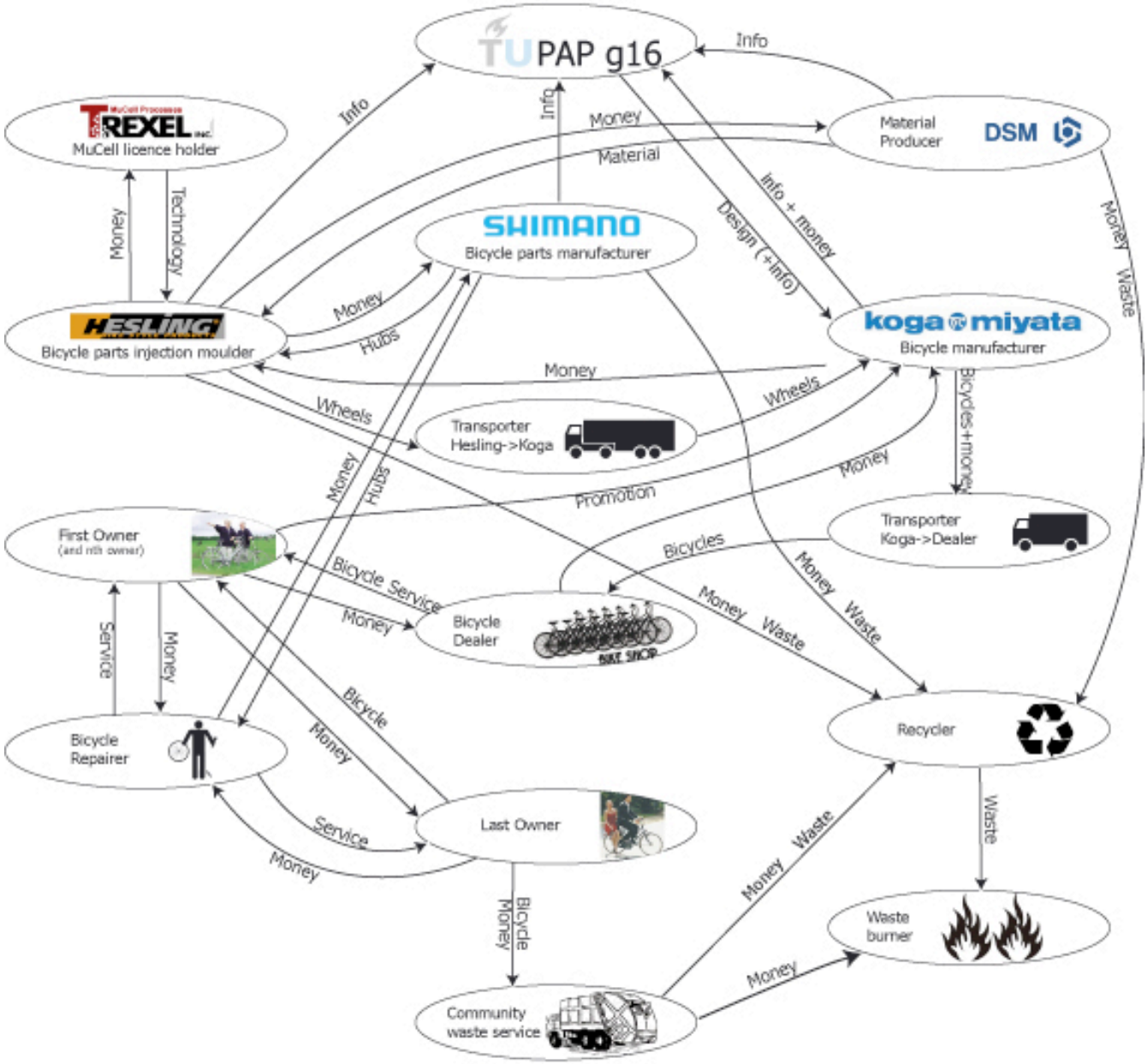



Tercerización
MATERIA PRIMA
TRANSPORTE
COMERCIALIZACIÓN CONSUMO / USO
DISPOSICIÓN FINAL
Post-fordismo
MATERIA PRIMA
TRANSPORTE
PRODUCCION
COMERCIALIZACIÓN CONSUMO / USO
DISPOSICIÓN FINAL
Fordismo
MATERIA PRIMA
TRANSPORTE
PRODUCCION
COMERCIALIZACIÓN CONSUMO / USO
DISPOSICIÓN FINAL
Preindustrial
MATERIA PRIMA
TRANSPORTE
PRODUCCION
COMERCIALIZACIÓN CONSUMO / USO
DISPOSICIÓN FINAL

CICLO DE VIDA STAKEHOLDERS



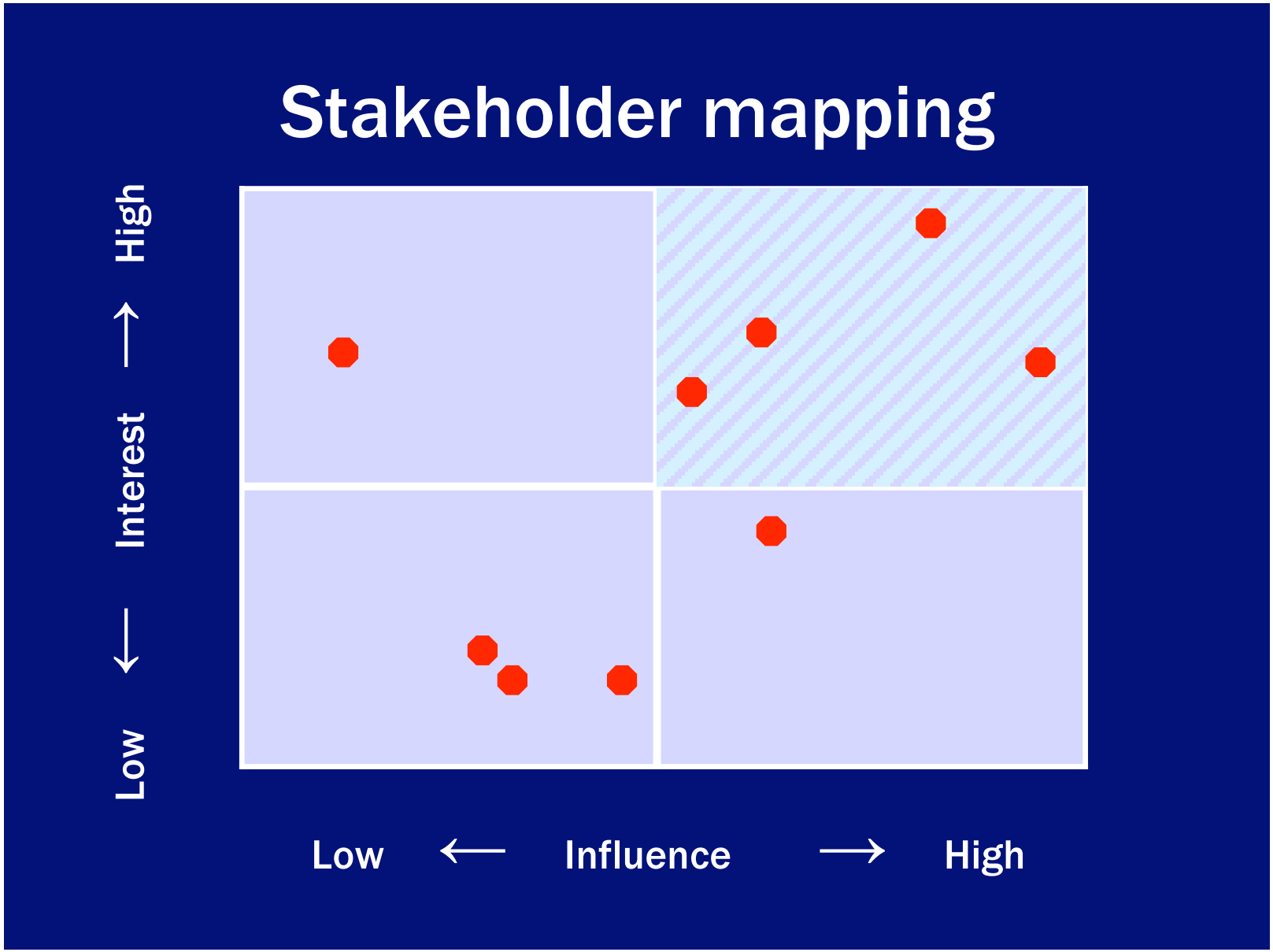
LÍMITES Y FLUJOS



Se analiza:

- Actividades
- Flujjos de información
- Flujo de Costos
- Impactos ambientales

HERRAMIENTAS

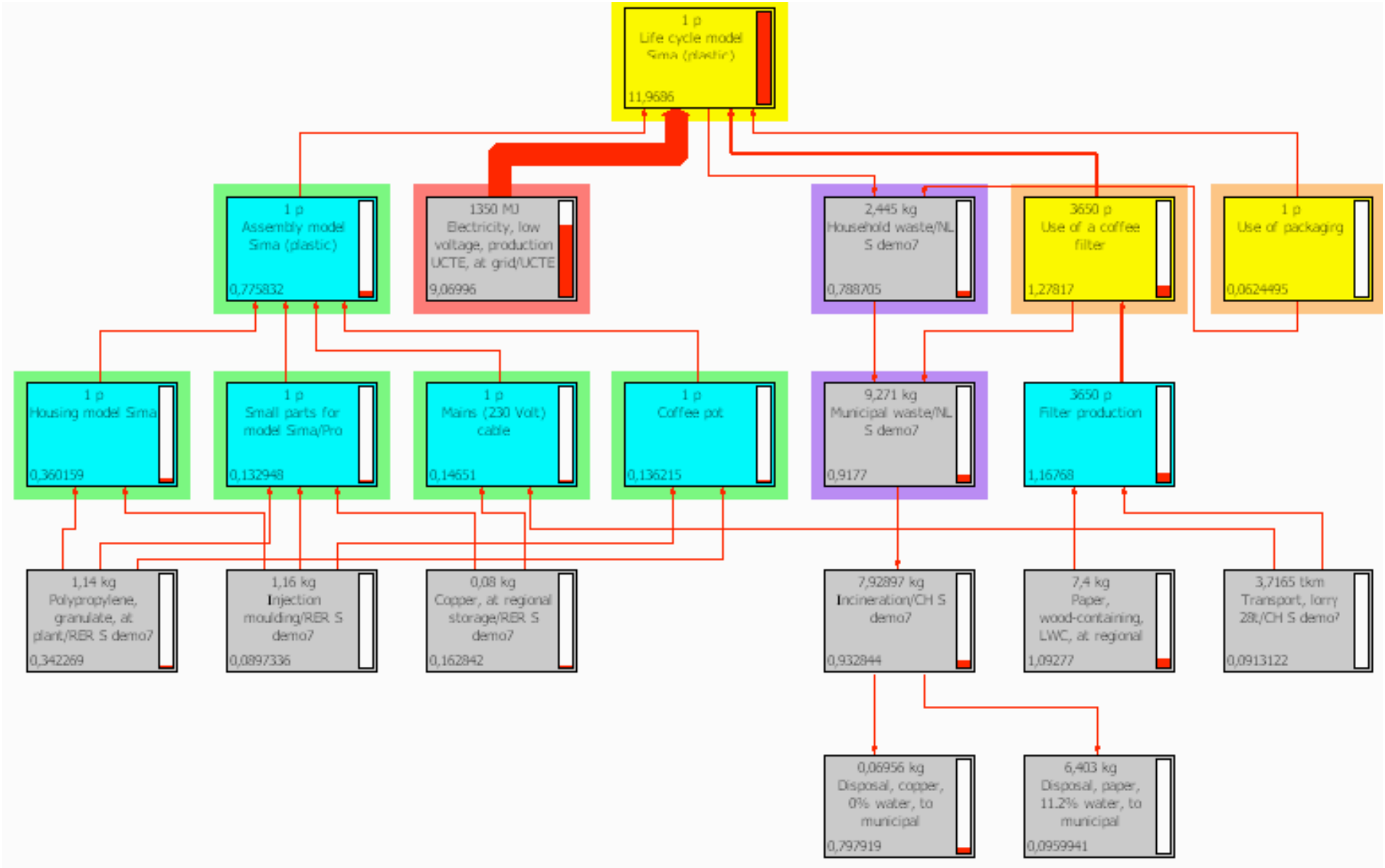


Esta herramienta puede ser útil para definir los límites del sistema

Stakeholder mapping in change

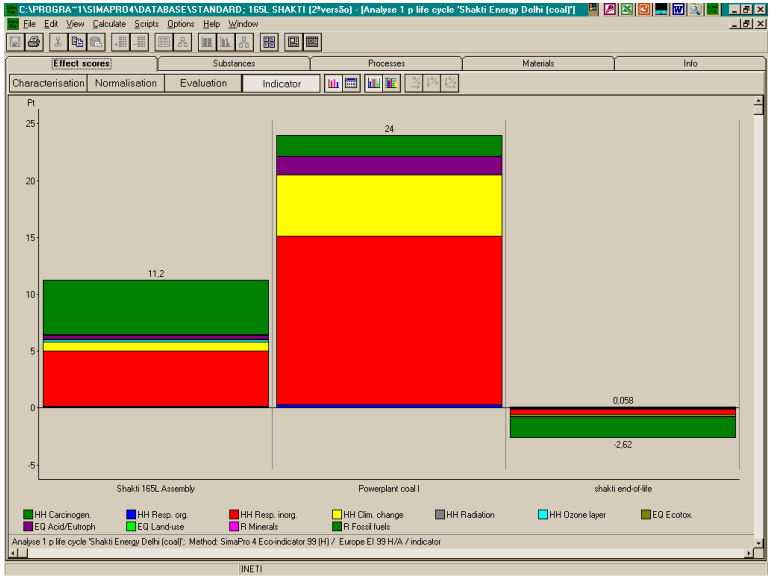
		Opposition			Support	
		Active opponents	Passive opponents	Fence-sitters	Passice supporters	Active supporters
Stakeholder Power	High					
	Medium					
	Low					

ANÁLISIS DEL IMPACTO AMBIENTAL LCA



LCA

MET Matrix	Material cycle (input/output)	Energy use (input/output)	Toxic emissions (output)
Suppliers			
Production			
Distribution			
Use			
Disposal			



Se basa en Ecoindicadores

Pasos

- Definir los “límites del sistema”
- Definir la **unidad funcional**
- Descomponer los elementos, partes, procesos y materiales de cada fase del ciclo deL producto según
- Evaluar cada fase

	Use of MATERIALS (Inputs) M	Use of ENERGY (Inputs) E	TOXIC EMISSIONS (Outputs: emissions, effluent, waste) T
Obtainment & consumption of materials and components	- Copper (exhaustible material) (0,05 kg). - Steel (0,3 kg) - Aluminium (0,3 kg) - Polystyrene (PS) (1 kg) - PVC (0,1 kg) - Glass (0,4 kg) - Printed circuits (0,1 kg)	- High energy content in materials (Al, Cu) - Transport of ready assembled printed circuits from Asia (0.03 kWh)	- Fire retardants in printed circuit boards (↓) - Liquefiers for injection moulding (↓) - PS: Benzene emissions (↓) - PUR: Isocyanate (↓) - Emissions due to painting and gluing (↓)
Factory production	- Auxiliary materials (welding materials, degreasers and lubricants for the machines of the production system of the company, etc.) (↓)	- Energy in miscellaneous processes (Polystyrene moulding, aluminium extrusion, welding etc.) (↓)	- Metallic and plastic waste (offcuts and rejects) (↓) - Remainder of lubricants and degreasers for machines. (↓)
Distribution	- Product packaging. (polyethylene bag: 0.3 kg and cardboard: 0.1 kg) - Cardboard for repacking (↓) - Instruction manual (0,04 kg).	- Diesel fuel for transport (lorries) (0.3 kWh)	- Emissions from diesel fuel combustion (↓). - Remainder of packing: - Polyethylene bag (recyclable) (0.3 kg) - Cardboard (recyclable) (0.1 kg)
Use or utilisation	- ***OPERATION*** - Paper filters (7,3 kg) - Coffee used (65 kg)* - Cleaning materials (↓) - Water for cleaning (10.950 l)	- Energy consumption (375 kwh) a.- Heating: 281,25 kwh b.- Maintenance: 93,75 kwh **	- Waste from consumables (filter with coffee dregs, etc.) (72,3 kg) - Waste water from cleaning (10.950 l). - Emissions deriving from energy consumption (2305 kg CO_2).
	MAINTENANCE - Parts which are easily breakable (↓).	- Transport of maintenance providers (↓)	- Remainder of replaced parts (↓).
End of life system. Final disposal			***RECYCLING*** - Glass (0,4 kg) - Plastics (1,1kg) - Instruction manual (0,04 kg) ***DISPOSAL*** - Printed circuit board (0,1 kg) - Copper (0,05 kg) - Aluminium (0,3 kg) - Steel (0,3 kg)

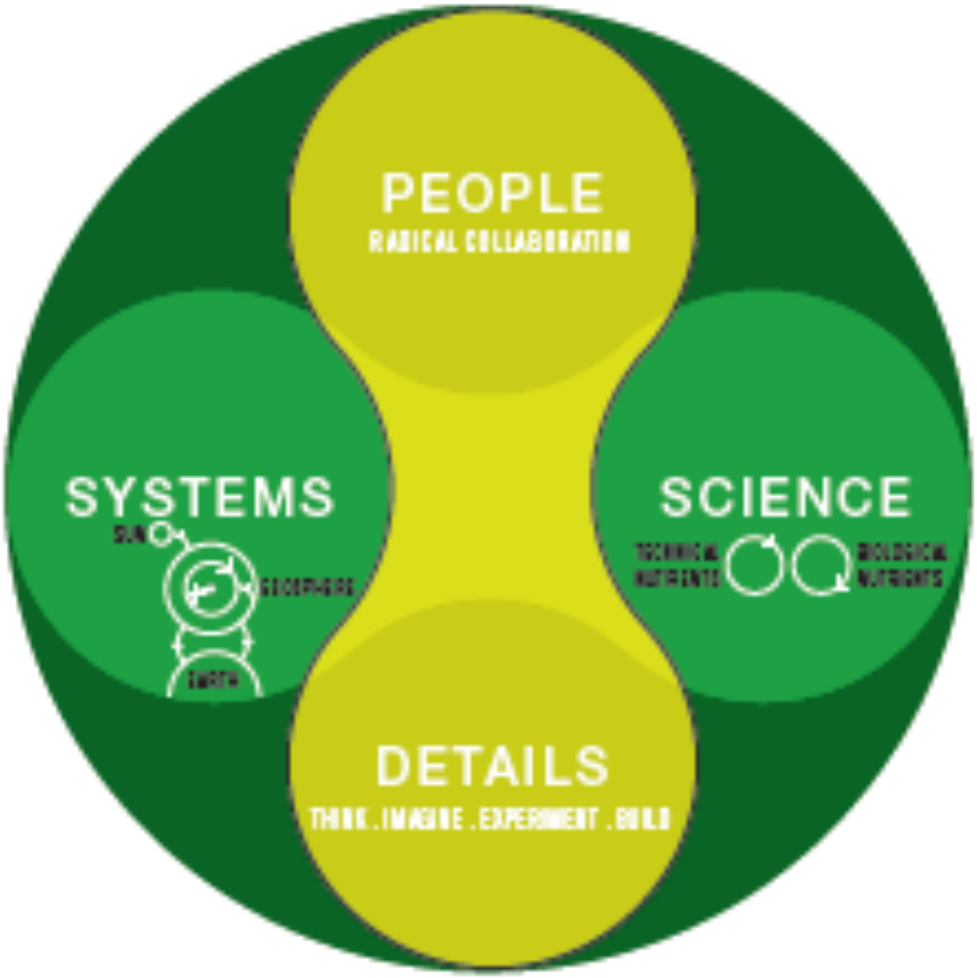
Priority impacts (detected with the aid of environmental consultant expert in Ecodesign).

* Consumption of coffee is allowed for at one 250 g packet per week throughout the 5 years of estimated lifetime. Despite the fact that the coffee is quantitatively one of the highest figures, it is the only one which cannot be minimised, so it has not been considered to be a priority.

** This breakdown may facilitate the generation of ideas for improvement on this environmental aspect.

USING LIFE CYCLE AWARENESS TOOLS

Think of it as another lens. A brainstorming tool. New questions to ask. A different perspective to take. Another avenue to explore. It's a truly postdisciplinary topic. It applies to everyone in the work they do at IDEO, no matter what their area of expertise happens to be.



Right now IDEO's focus lies mainly within use and manufacturing. However, widening our view to include the entire product life cycle will allow us to contribute more holistically to the big picture. When we pull back, that's when we can truly understand and observe the implications of and possibilities for the things we design. We can see cyclical paths for products that we might not have seen before.

Typically, these activities help the client realize they know very little about the implications of their products' impact on the world.

A 4-STEP TOOLKIT

1
AWARENESS
Understanding your product
from a systems perspective

2
UNDERSTANDING
Understanding the impact of
the choices we make

3
OPPORTUNITIES
Imagining what's possible

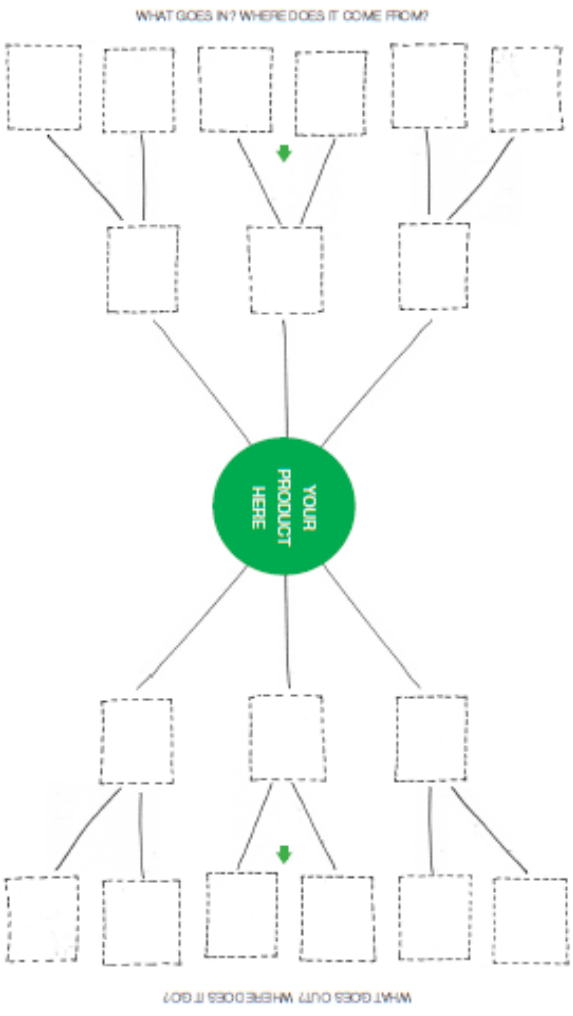
4
GETTING TRACTION
Identifying areas where IDEO
can make a difference

1

AWARENESS

Understanding your product from a systems perspective

Earlier prototype in use

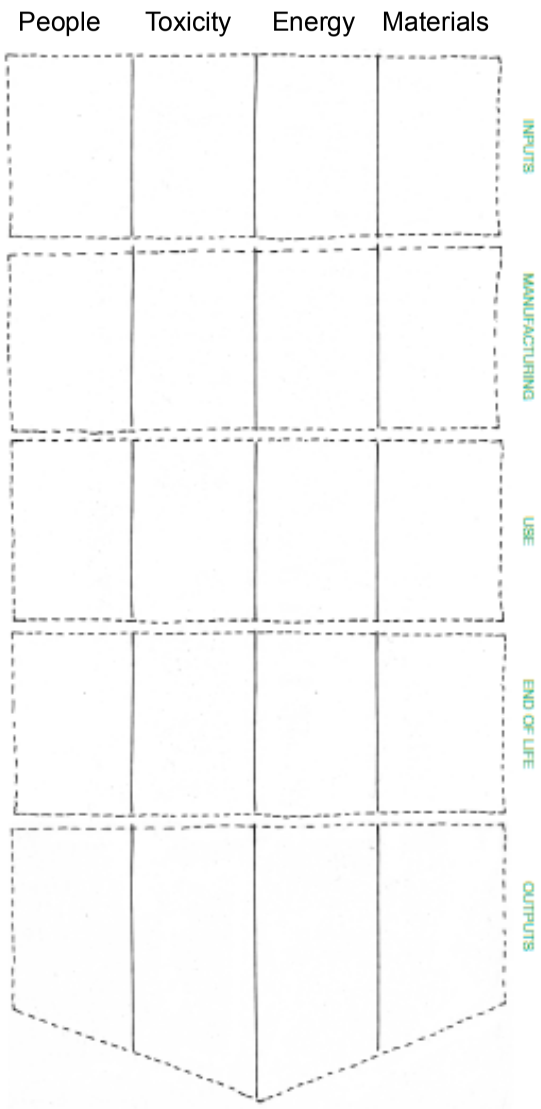


2

UNDERSTANDING

Understanding the impact of the choices we make

Earlier prototype in use

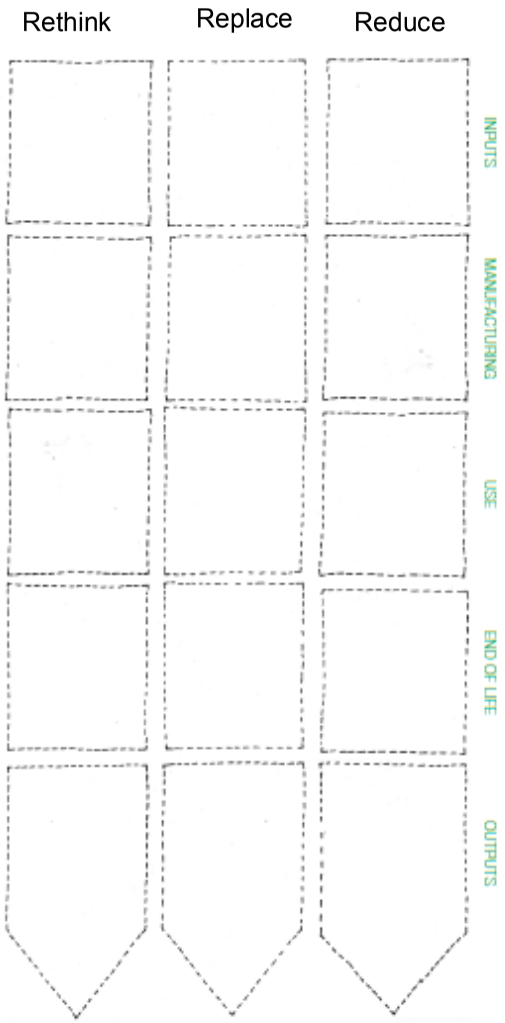


3

OPPORTUNITIES

Imagining what's possible

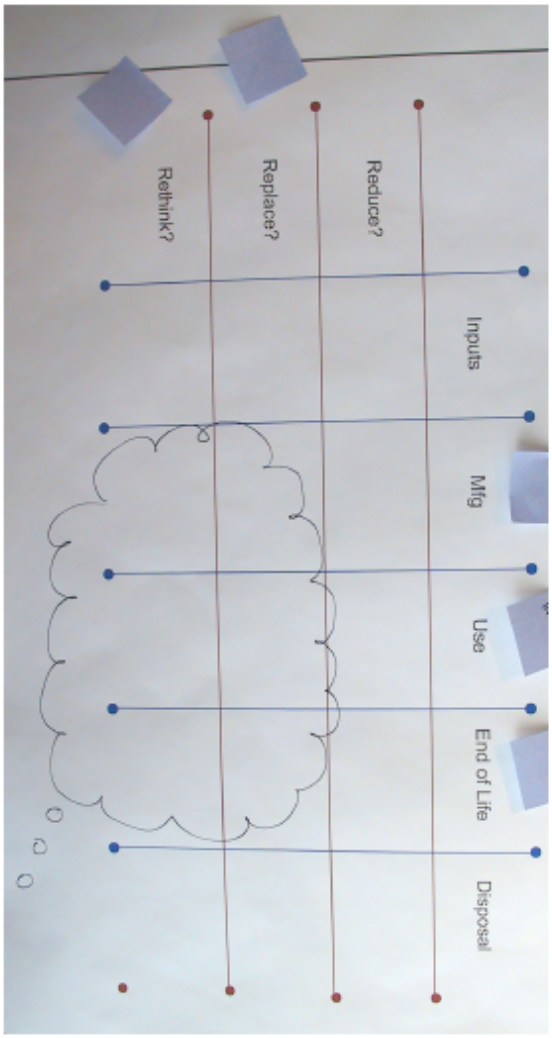
Earlier prototype in use



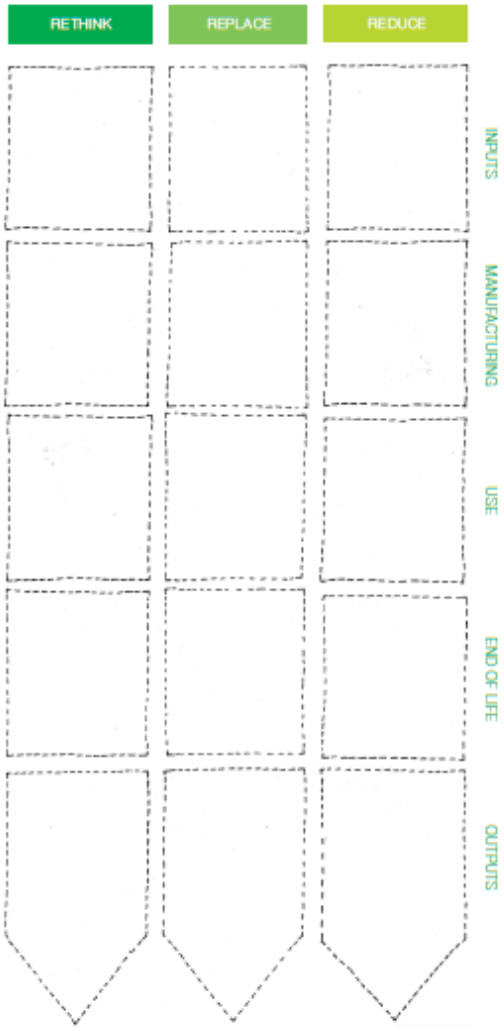
4

GETTING TRACTION

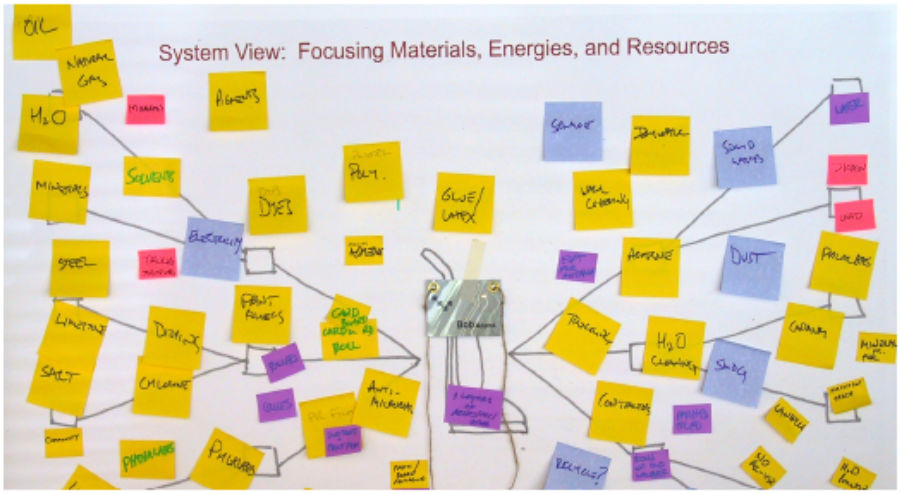
Identifying areas where IDEO can make a difference



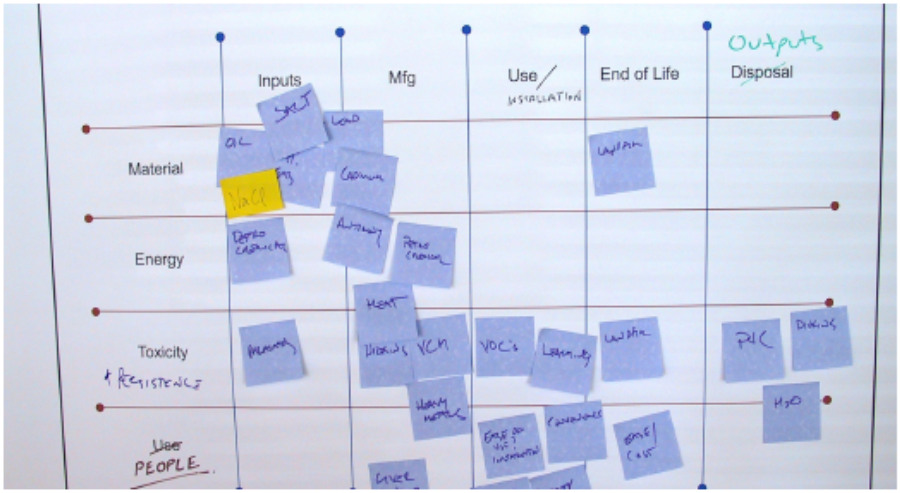
Earlier prototype in use



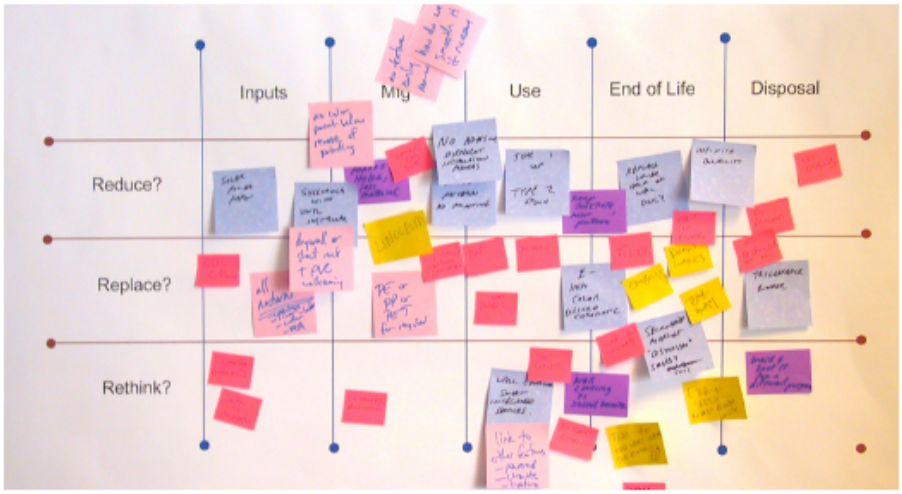
1 AWARENESS



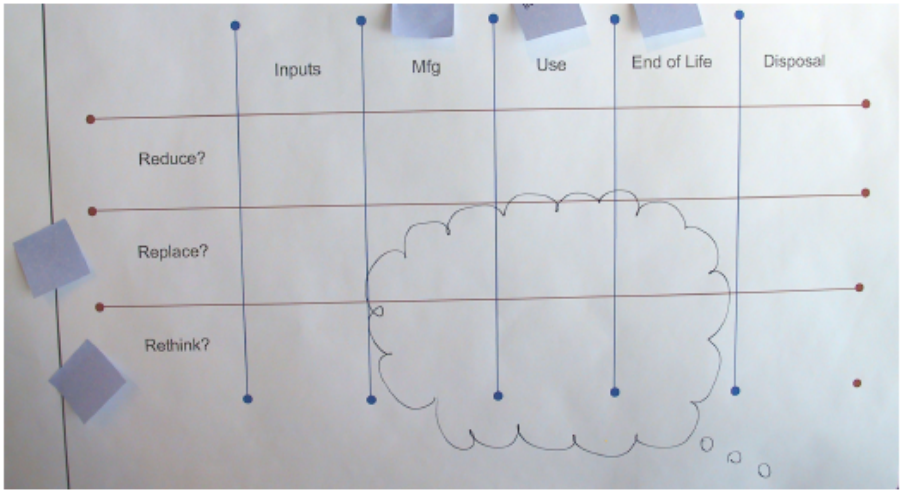
2 UNDERSTANDING



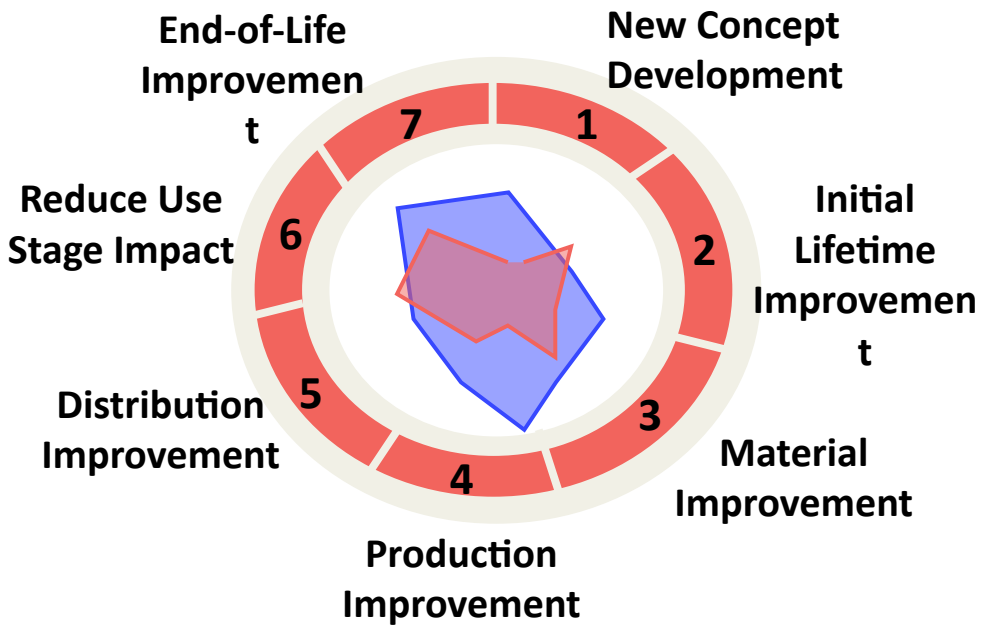
3 OPPORTUNITIES



4 GETTING TRACTION



LIDS WHEEL

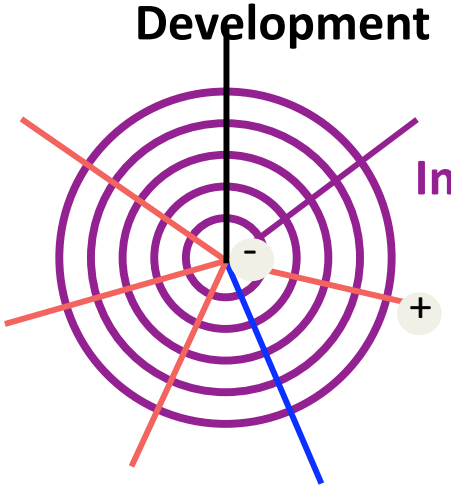


When to Use?

- not much (if any) hard data available (early in a design process)
- screening of major problem areas (assessment of concepts)
- to stimulate creation/innovation – relates to TRIZ

1.1 Dematerialize
1.2 Increase shared use
1.3 Provide a service

1. New Concept Development



2. Initial Lifetime Improvement

2.1 Integrate product functions
2.2 Optimize functions
2.3 Increase reliability and durability
2.4 Easy maintenance and repair
2.5 Modular product structure
2.6 Strong user-product relationship

Material Improvement

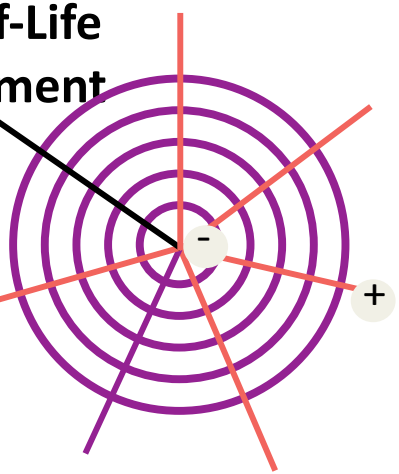
3.1 Cleaner materials
3.2 Renewable materials
3.3 Lower energy-content materials
3.4 Recycled materials
3.5 Recyclable materials
3.6 Reduce material usage

Production Improvement

4.1 Alternative production techniques
4.2 Fewer production techniques
4.3 Lower/cleaner energy consumption
4.4 Less production waste
4.5 Fewer/cleaner production consumables

7.1 Product Re-use
7.2 Design for disassembly
7.3 Remanufacturing
7.4 Material recycling
7.5 Safer incineration

7. End-of-Life Improvement



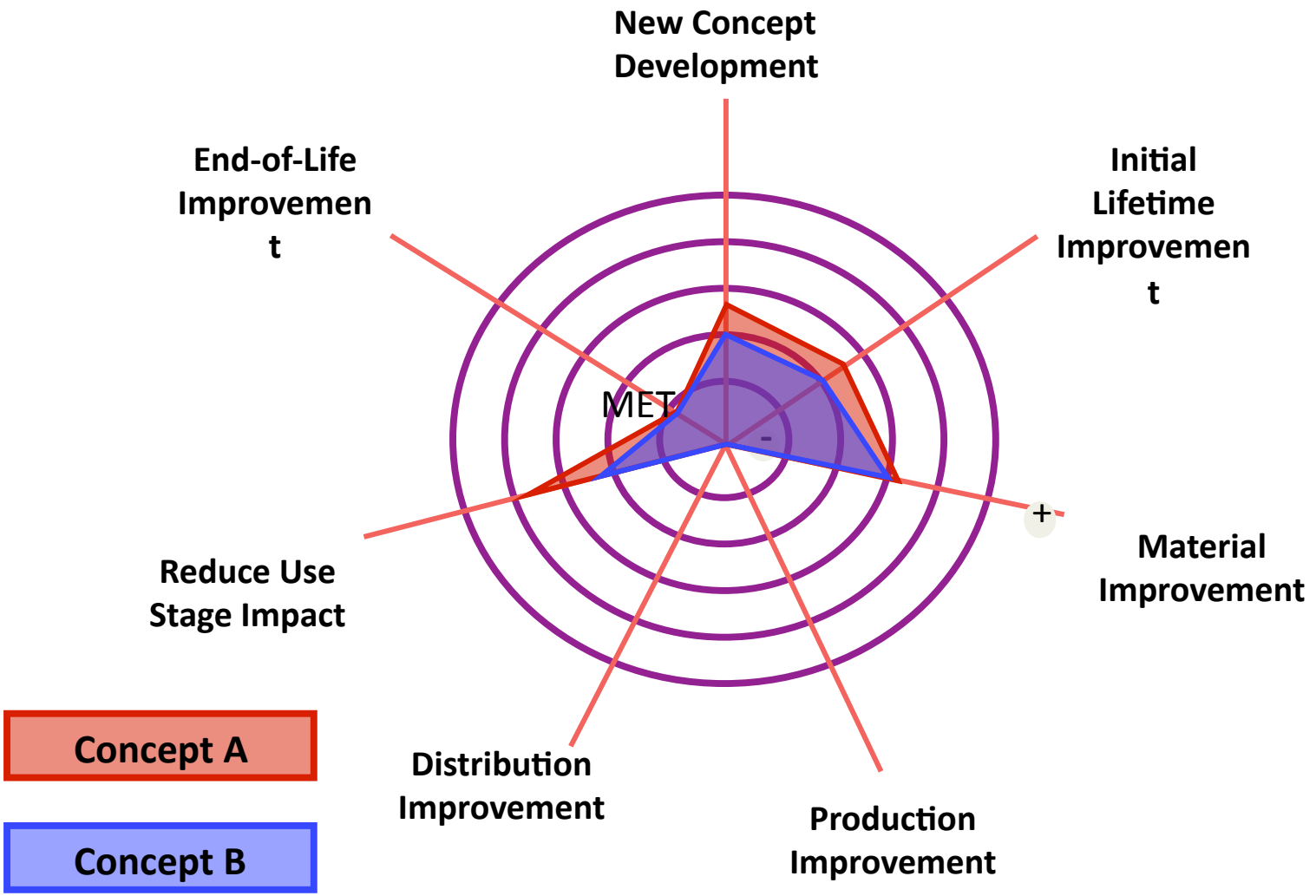
6. Reduce Use Stage Impact

6.1 Lower energy consumption
6.2 Cleaner energy sources
6.3 Reduce use of consumables
6.4 Cleaner consumables/auxiliaries
6.5 Reduce energy/consumable waste

5. Distribution Improvement

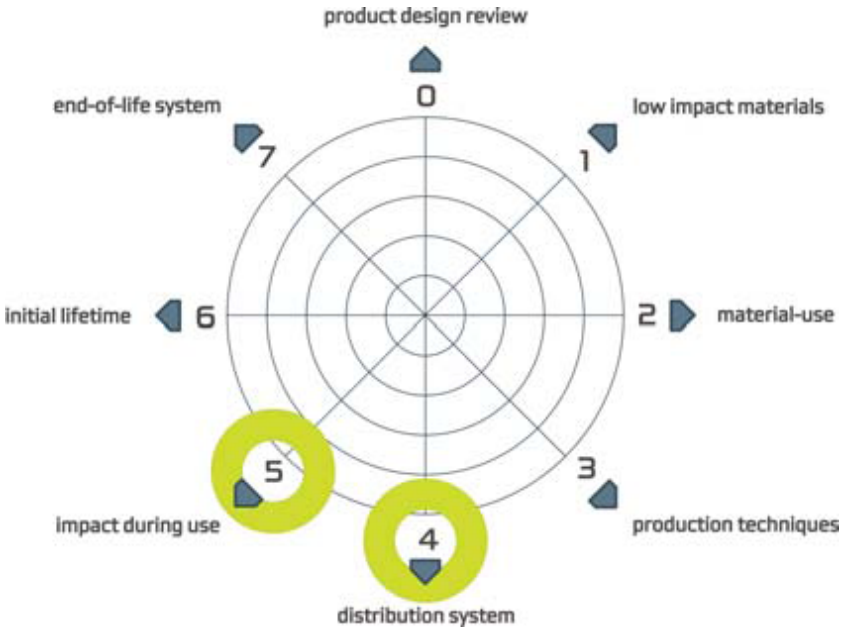
5.1 Less/cleaner/reusable packaging
5.2 Energy-efficient transportation
5.3 Energy-efficient logistics

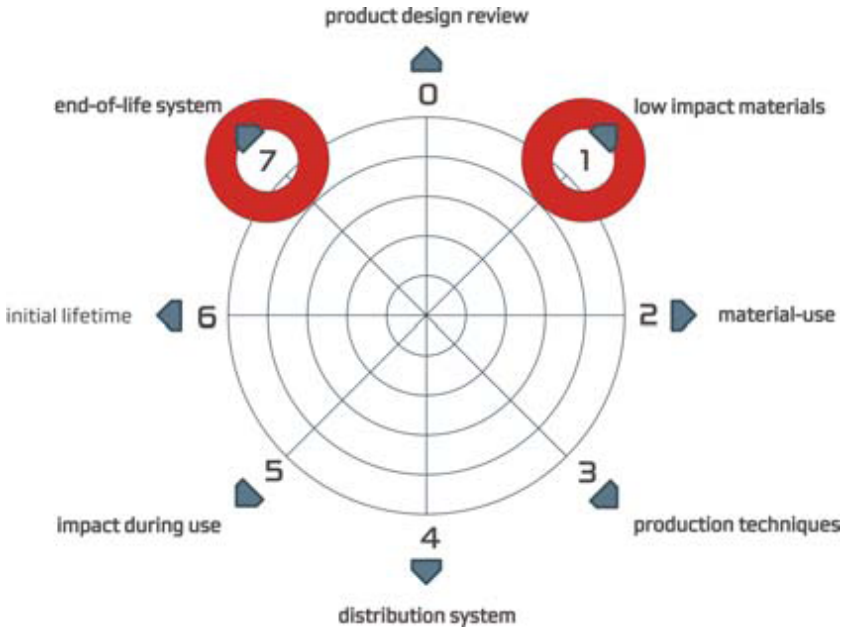
EVALUACIÓN DE CONCEPTOS



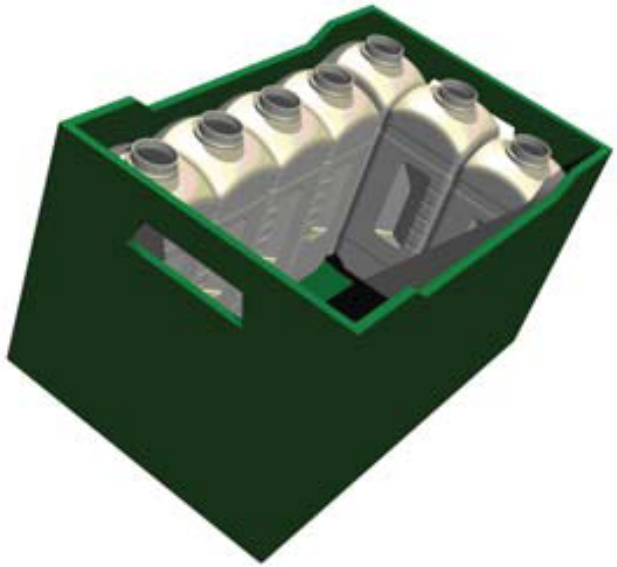
•Example of selection of D4S strategies based upon
1) Priorities based upon D4S Impact Assessment (top),
2) Priorities based upon D4S drives (bottom).

•For example, in the case of an electronic product
being developed by a company in Vietnam for the
European market, the outcome of the Impact Assessment might highlight energy consumption and worldwide distribution to have the greatest environmental impact. As a result, the design team could focus on 5 “Reduction of impact during use” and strategy 4 ‘Optimization of distribution system’



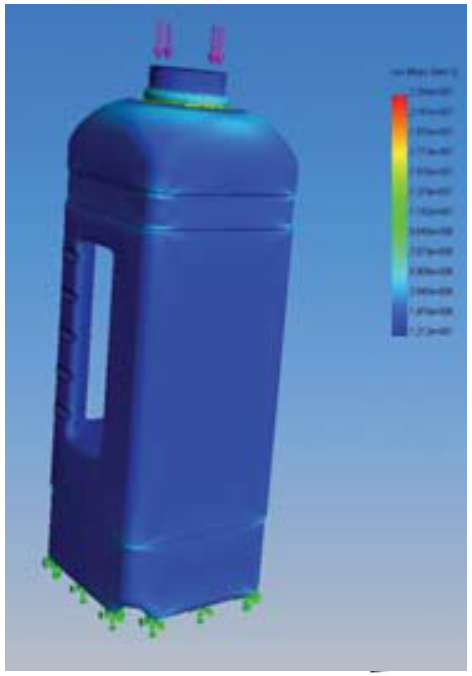


Product redesign: a plastic bottle at Microplast, Costa Rica



•The company Microplast is a plastic products company in Costa Rica
with 70 employees, founded in 1981.The company uses 25 tonnes of plastic per month to make different bottles for pharmaceutical, cosmetic and food products.

•The product redesigned was a 1.8 litre HDPE bottle.

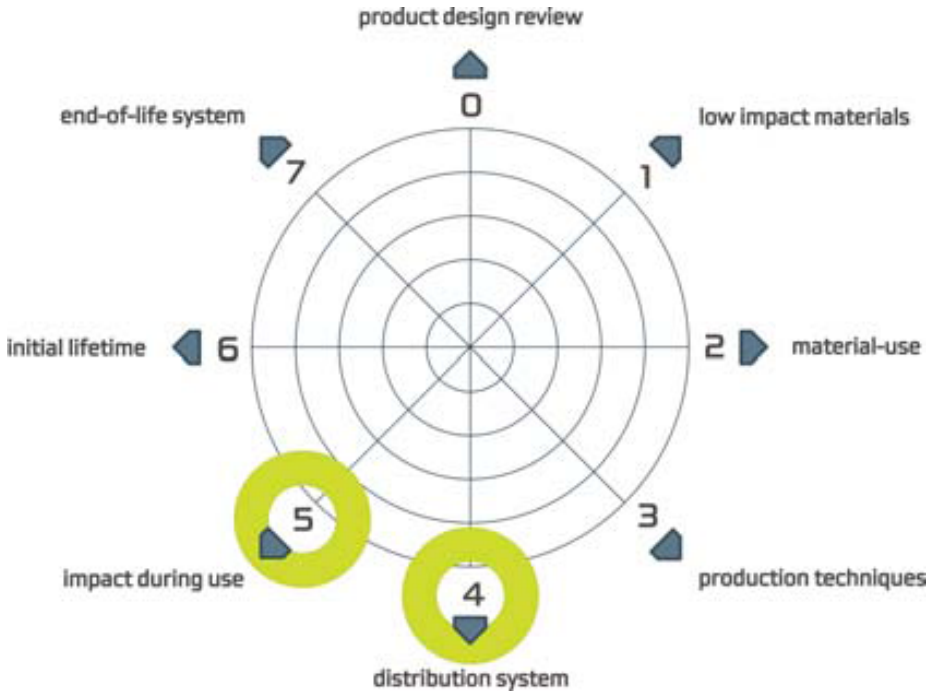


•As a starting point for the redesign effort, the bottle from MicroPlast was compared to two bottles used by the leading competing company. The average weight of a bottle without a top was between 60 and 70 grams.

•The bottles were distributed in standard HDPE boxes.

•The boxes were also used for other types of packaging such as Tetra Pack and Tetra Brik.The company was able to put 12 bottles in one box.

Improvement options



The main environmentally focus areas were:

- Reduction of used material per bottle (D4S Strategy 2)

- Reduction of impact of packaging material per litre content (D4S Strategy 1 and 2)

- Reduction of waste material during production (D4S Strategy 3)

- Higher efficiency in distribution (D4S Strategy 5)

Results

- Material use reduction of 45-50%
- Better distribution efficiency of 25%
- Better ergonomics
- Less reprocessing during production
- On a scale of 300,000 bottles per month, this would mean a reduction of 9000 kilos of HDPE per month and thus a savingsof 108 tons of HDPE per year.

DISTRIBUCIÓN Y LOGÍSTICA

- Empaques
    - Transporte
    - Presentación

Transporte

Transporte

Transporte

UMCOR
19 SEWING KITS
19 Sewing Kits
18 Sewing Kits
18 Sewing Kits
UMCOR
18 Sewing Kits
UMCOR
18 Sewing Kits
17 Sewing Kits
UMCOR

Transporte

2330 mm
5867 mm
2350 mm
2261 mm
2286 mm
ГРУЗОВОЗОФФ
ПЕРЕВОЗКА ГРУЗОВ ПО РОССИИ

Transporte

Transporte

Transporte

Transporte

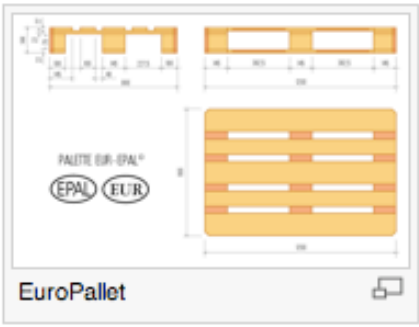
North American pallets [edit]

Of the top pallets used in North America, the most commonly used by far is the Grocery Manufacturers' Association (GMA) pallet, which accounts for 30% of all new wood pallets produced in the United States.[11] The ISO also recognizes the GMA pallet footprint as one of its six standard sizes.

Dimensions, mm (W × L)	Dimensions, in (W × L)	Production Rank	Industries Using
1219 × 1016	48 × 40	1	Grocery, many others
1067 ×1067	42 × 42	2	Telecommunications, Paint
1219 × 1219	48 × 48	3	Drums
1016 × 1219	40 × 48	4	Military[12], Cement
1219 × 1067	48 × 42	5	Chemical, Beverage
1016 × 1016	40 × 40	6	Dairy
1219 × 1143	48 × 45	7	Automotive
1118 × 1118	44 × 44	8	Drums, Chemical
914 × 914	36 × 36	9	Beverage
1219 × 914	48 × 36	10	Beverage, Shingles, Packaged Paper
889 × 1156	35 × 45.5	Unknown	Military 1/2 ISO container, fits 36" standard doors[13]
1219 × 508	48 × 20	Unknown	Retail

Transporte

European pallets [edit]



EuroPallet

In Europe, the EURO pallet, also called a CEN pallet, is widely used in many industries. It measures 800 by 1200 by 120 mm.[14] Manufacturers of EURO pallets must be sanctioned by the European Pallet Association (EPAL), which governs the smallest details, even which types of nails and lumber may be used. The strict standardization is based on the existence of europool pallet swap organizations - their mutual swap agreements across country boundaries does only include EURO pallets of a specific EPAL/EUR type (mostly restricted to type 1). Most freight forwarders will accept pool palettes handling the cost clearing between sender and receiver even for international transport to countries that take part in the europool system. The ongoing harmonization of freight handling within the European Economic Area has led to a decline of the europool system. The EURO pallet does not fit efficiently within the ISO shipping container[15] and slightly wider containers are often used for this reason.[16]

The four common sizes of EURO pallets[17] (alongside with ISO alternative sizes[18]) are:

EURO pallet type	Dimensions, mm (W × L)	ISO pallet alternative
EUR, EUR 1	800 × 1200	ISO1, same size as EUR
EUR 2	1200 × 1000	ISO2
EUR 3	1000 × 1200	
EUR 6	800 × 600	ISO0, half the size of EUR
	600 × 400	quarter the size of EUR
	400 × 300	one-eighth the size of EUR

Transporte

ISO pallets

The International Organization for Standardization (ISO) sanctions six pallet dimensions, detailed in *ISO Standard 6780: Flat pal intercontinental materials handling—Principal dimensions and tolerances*:[10]

Dimensions, mm (W × L)	Dimensions, in (W × L)	Wasted floor, ISO container	Region most used in
1219 × 1016	48.00 × 40.00	3.7%	North America
1000 × 1200	39.37 × 47.24	6.7%	Europe, Asia; similar to 48x40".
1165 × 1165	44.88 × 44.88	8.1%	Australia
1067 × 1067	42.00 × 42.00	11.5%	North America, Europe, Asia
1100 × 1100	43.30 × 43.30	14%	Asia
800 × 1200	31.50 × 47.24	15.2%	Europe; fits many doorways

Transporte

		20′ container		40′ container		40′ high-cube container		45′ high-cube container	
		imperial	metric	imperial	metric	imperial	metric	imperial	metric
external dimensions	length	20′ 0″	6.096 m	40′ 0″	12.192 m	40′ 0″	12.190 m	45′ 0″	13.716 m
	width	8′ 0″	2.438 m	8′ 0″	2.438 m	8′ 0″	2.438 m	8′ 0″	2.438 m
	height	8′ 6″	2.591 m	8′ 6″	2.591 m	9′ 6″	2.896 m	9′ 6″	2.896 m
interior dimensions	length	18′ 10 5/16″	5.758 m	39′ 5 45/64″	12.032 m	39′ 4″	12.000 m	44′ 4″	13.556 m
	width	7′ 8 19/32″	2.352 m	7′ 8 19/32″	2.352 m	7′ 7″	2.440 m	7′ 8 19/32″	2.352 m
	height	7′ 9 57/64″	2.385 m	7′ 9 57/64″	2.385 m	8′ 9″	2.650 m	8′ 9 15/16″	2.698 m
door aperture	width	7′ 8 ⅛″	2.343 m	7′ 8 ⅛″	2.343 m	7′ 6″	2.280 m	7′ 8 ⅛″	2.343 m
	height	7′ 5 ¾″	2.280 m	7′ 5 ¾″	2.280 m	8′ 5″	2.560 m	8′ 5 49/64″	2.585 m
volume		1,169 ft³	33.1 m³	2,385 ft³	67.5 m³	2,660 ft³	75.3 m³	3,040 ft³	86.1 m³
maximum gross mass		66,139 lb	30,400 kg	66,139 lb	30,400 kg	68,008 lb	30,848 kg	66,139 lb	30,400 kg
empty weight		4,850 lb	2,200 kg	8,380 lb	3,800 kg	8,598 lb	3,900 kg	10,580 lb	4,800 kg
net load		61,289 lb	28,200 kg	57,759 lb	26,600 kg	58,598 lb	26,580 kg	55,559 lb	25,600 kg

Presentación

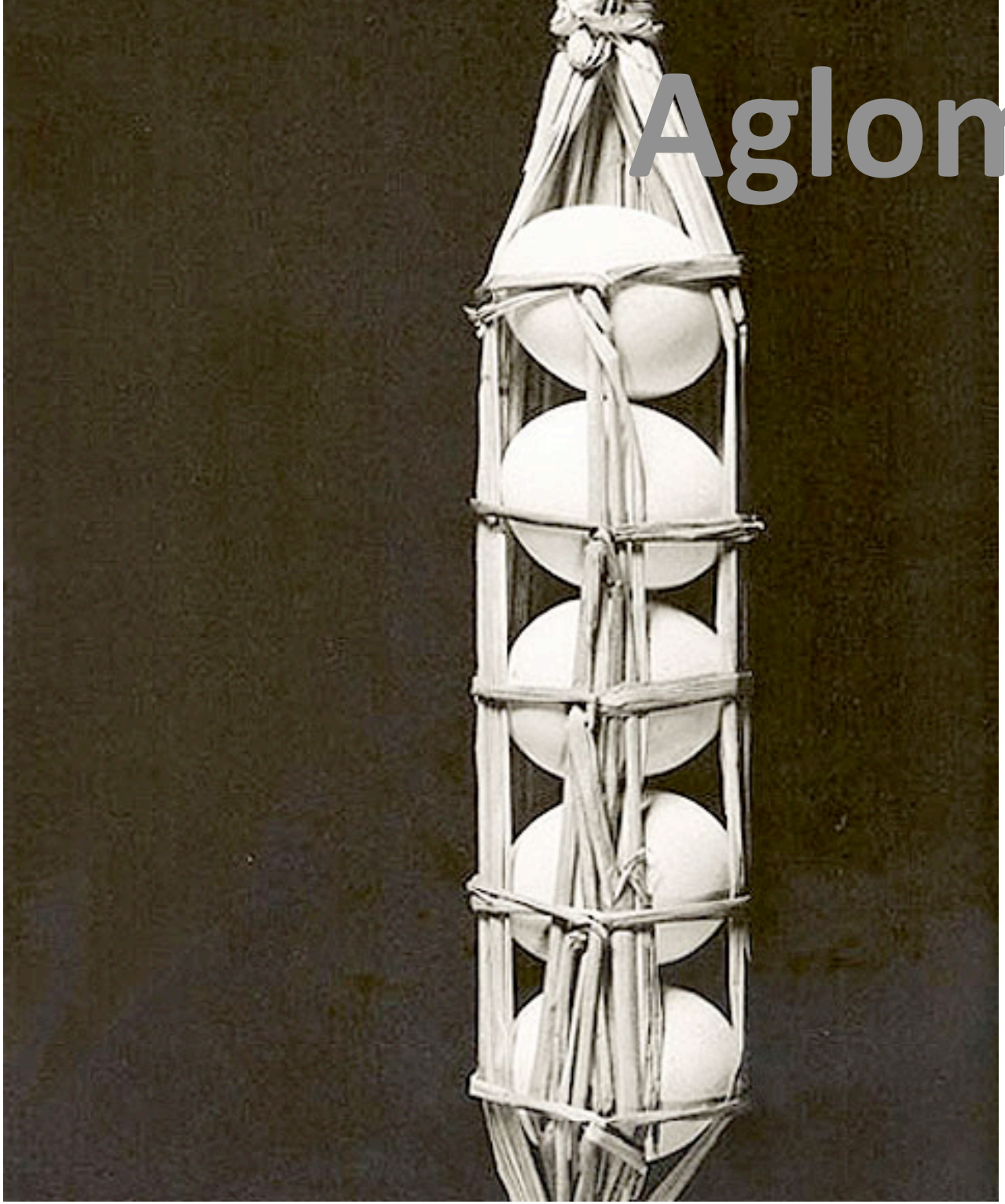
Presentación

Presentación

Protección

PROTECCIÓN

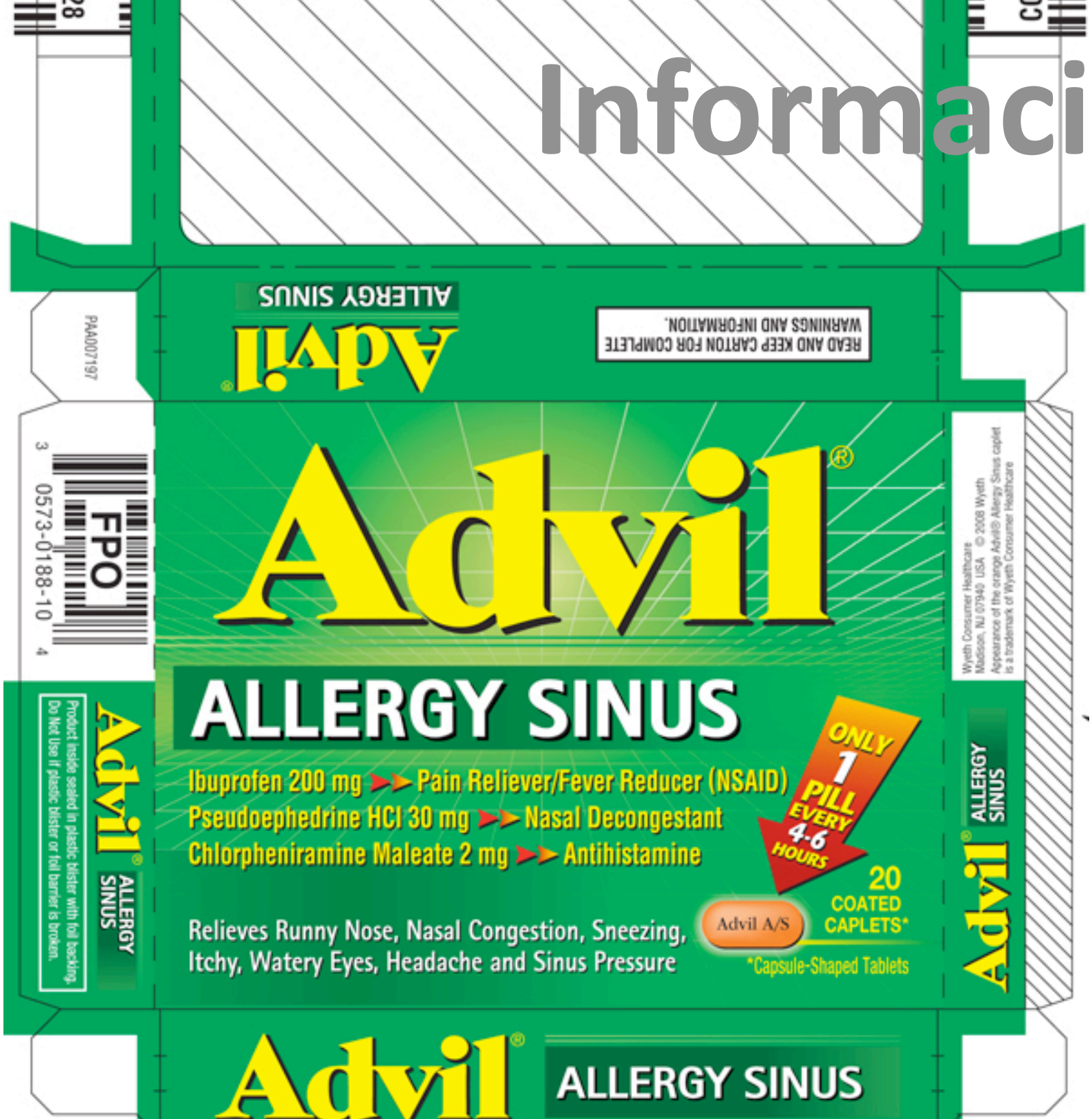
Barrera



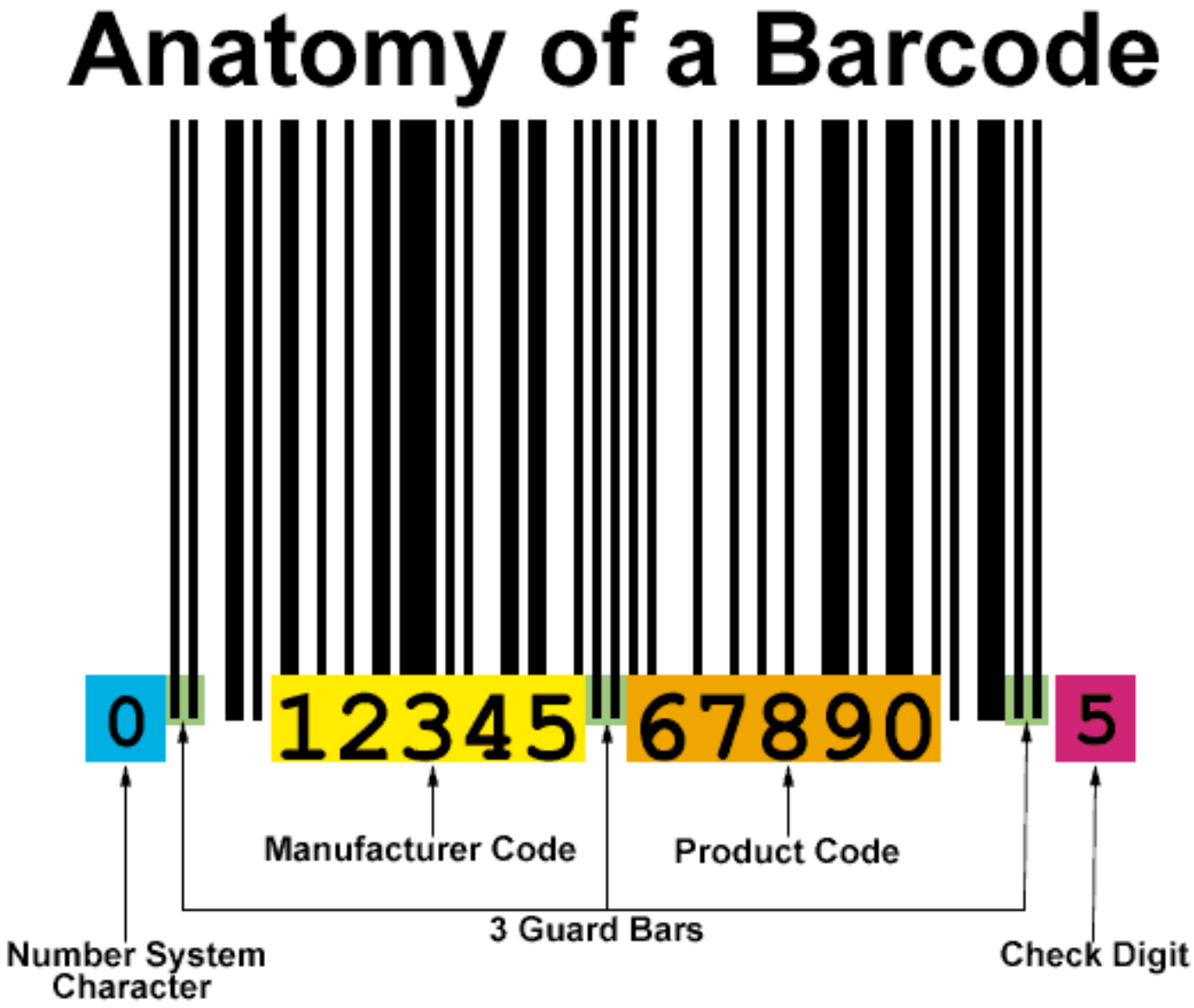
Aglomeración

Información

Información



Información



Mercadeo

Tropicana
pure premium
squeezed from fresh oranges
Tropicana
pure premium
100%
orange
pure & natural
Tropicana
pure premium
100% pure & natural orange juice
pasteurized
64 FL OZ (2 QT) 1.89 L

Mercadeo

NEW
BIOLOGICAL
ARIEL
Brilliant cleaning
and stain removal
ARIEL

Seguridad
PowerShot SX
数码相机 / Digital Ca
Security Technology Inc
PowerShot SX
数码相机 / Digital Came

Conveniencia

Conveniencia

Porciones

Porciones

LEMON FLAVOUR
Alka-Seltzer
ADULTS: Dissolve 2 tablets in water.
Use only as directed
LEMON FLAVOUR
Alka-Seltzer
Each tablet contains aspirin 324mg
as active ingredient
LEMON FLAVOUR
Alka-Seltzer

An easy-to-open top and resealable cap make the design very user-friendly.

6-packs made entirely of recycled materials further the cause to help the environment.

shipper and merc

Shipping containers made of ecoboard make it easy to transport to stores/on-