



AJUNTAMENT DE
VILADECANS



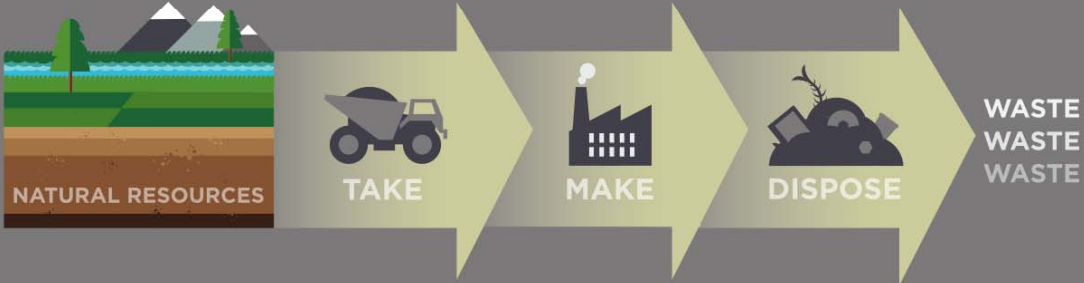
IMPRESIÓ I ECONOMIA CIRCULAR

Cap a la construcció d'un sistema holístic



Visió Lineal

LINEAR ECONOMY



TECHNICAL & BIOLOGICAL MATERIALS MIXED UP

ENERGY FROM FINITE SOURCES

Consequències

Es pronostica que molts recursos s'esgoten en un període relativament curt...

Remaining years until depletion of known reserves (based on current rate of extraction)

1																	2		
H																	He		
1.00794																	4.002602		
3	4													5	6	7	8	9	10
Li	Be													B	C	N	O	F	Ne
6.941	9.012182													10.811	12.0107	14.00674	15.9994	18.99840	20.1797
11	12													13	14	15	16	17	18
Na	Mg													Al	Si	P	S	Cl	Ar
22.98977	24.3050													26.98153	28.0855	30.97376	32.066	35.4527	39.948
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr		
39.0983	40.078	44.95591	47.867	50.9415	51.9961	54.93804	55.845	58.93320	58.6934	63.546	65.39	69.723	72.61	74.92160	78.96	79.904	83.80		
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
85.4678	87.62	88.9085	91.224	92.90638	95.94	[98]	101.07	102.9055	106.42	107.8682	112.411	114.818	118.760	121.760	127.60	126.9044	131.29		
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86		
Cs	Ba	La*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn		
132.9054	137.327	138.9055	178.49	180.9479	183.84	186.207	190.23	192.227	195.078	196.9665	200.59	204.3833	270.2	208.9804	[209]	[210]	[222]		
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118		
Fr	Ra	Ac ‡	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rq	Uub	Uut	Uuq	Uup	Lv	Uus	Uuo		
[223]	226.025	[227]	[257]	[260]	[263]	[262]	[265]	[266]	[271]	[272]	[285]	[284]	[289]	[288]	[292]				

...mentre que només alguns materials són reciclats a gran escala

Current rates of recycling

1																	2		
H																	He		
1.00794																	4.002602		
3	4													5	6	7	8	9	10
Li	Be													B	C	N	O	F	Ne
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37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
85.4678	87.62	88.9085	91.224	92.90638	95.94	[98]	101.07	102.9055	106.42	107.8682	112.411	114.818	118.760	121.760	127.60	126.9044	131.29		
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86		
Cs	Ba	La*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn		
132.9054	137.327	138.9055	178.49	180.9479	183.84	186.207	190.23	192.227	195.078	196.9665	200.59	204.3833	270.2	208.9804	[209]	[210]	[222]		
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118		
Fr	Ra	Ac ‡	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rq	Uub	Uut	Uuq	Uup	Lv	Uus	Uuo		
[223]	226.025	[227]	[257]	[260]	[263]	[262]	[265]	[266]	[271]	[272]	[285]	[284]	[289]	[288]	[292]				

Lanthanides *

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
140.9077	144.24	[145]	150.36	151.964	157.25	158.9253	158.9253	162.50	164.9303	167.26	168.9342	173.04	174.967

Actinides ‡

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
232.0381	231.0289	238.0289	[237]	[244]	[243]	[247]	[247]	[251]	[252]	[257]	[258]	[259]	[262]

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232.0381	231.0289	238.0289	[237]	[244]	[243]	[247]	[247]	[251]	[252]	[257]	[258]	[259]	[262]



...ALGUNA COSA MÉS?



Lots de procés



<http://www.christophmuegge.com/sculpture--installation-2015-2016.html>

PROBLEMES



Toxines varies com monòmers residuals, organohalogenats, contingut amb cobalt...



Filtratges poden deixar l'aigua com a no potable tot i tenir una xarxa de sanejament



La majoria d'aquests llots acaben en **incineració** o en abocadors perquè els costos de tractament són massa alts



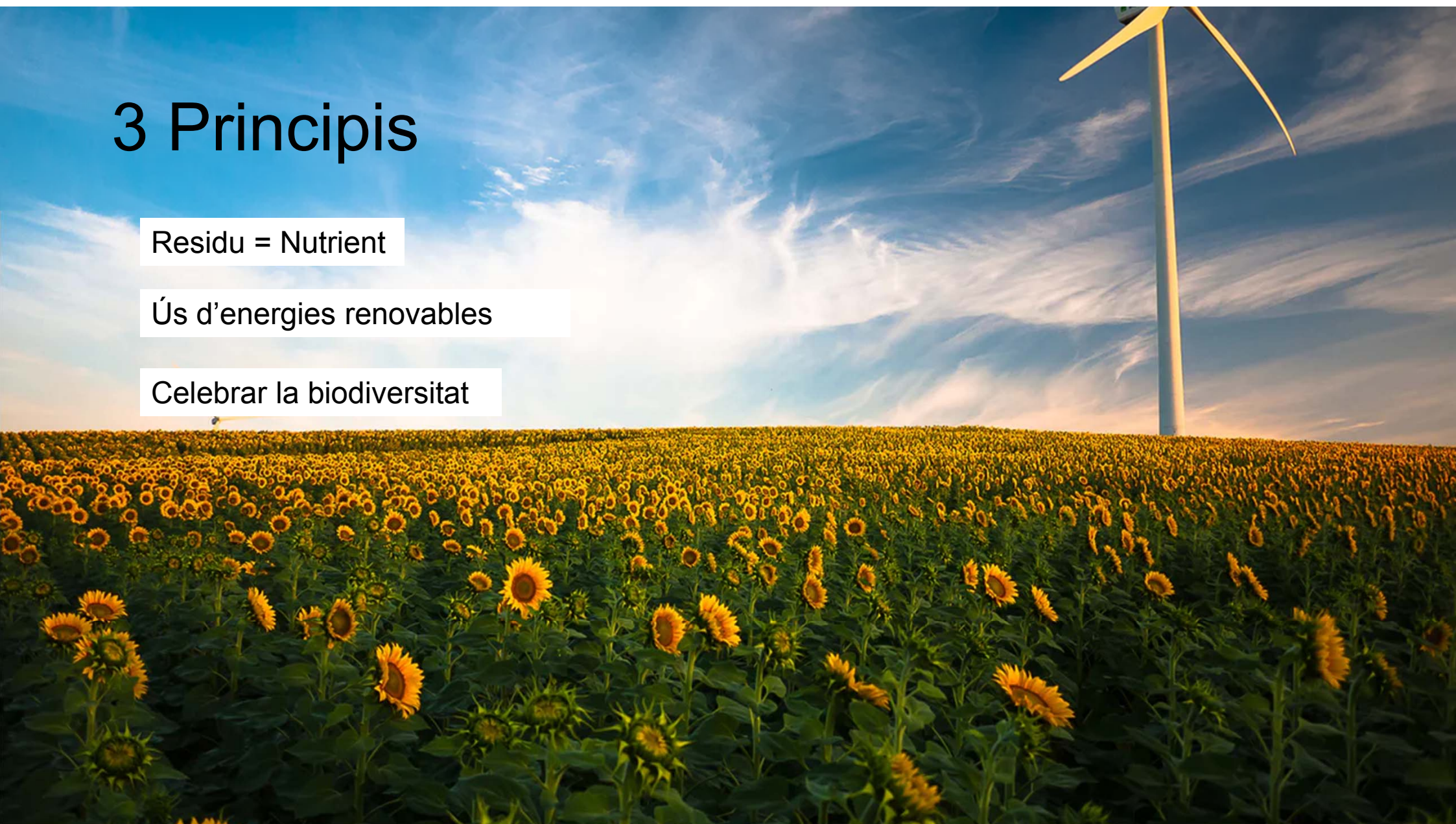
**Es possible imprimir sense
conseqüències negatives?**

3 Principis

Residu = Nutrient

Ús d'energies renovables

Celebrar la biodiversitat



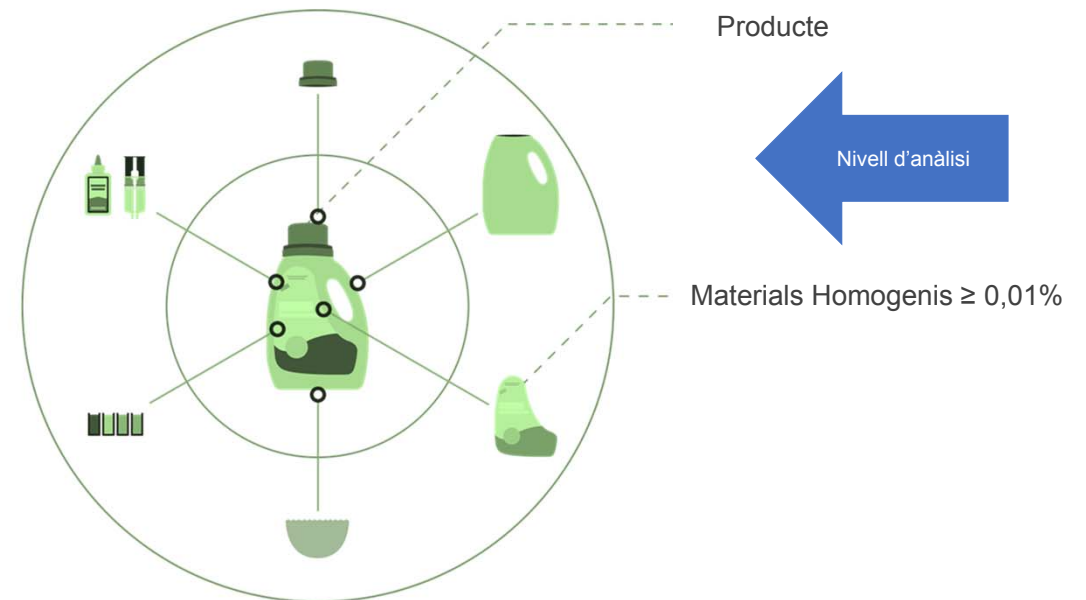
Cradle to Cradle Certified™

5 categories
basades en principis



Disenyar productes
saludables i segurs per les
persones i el entorn desde
la producció fins la
reutilització

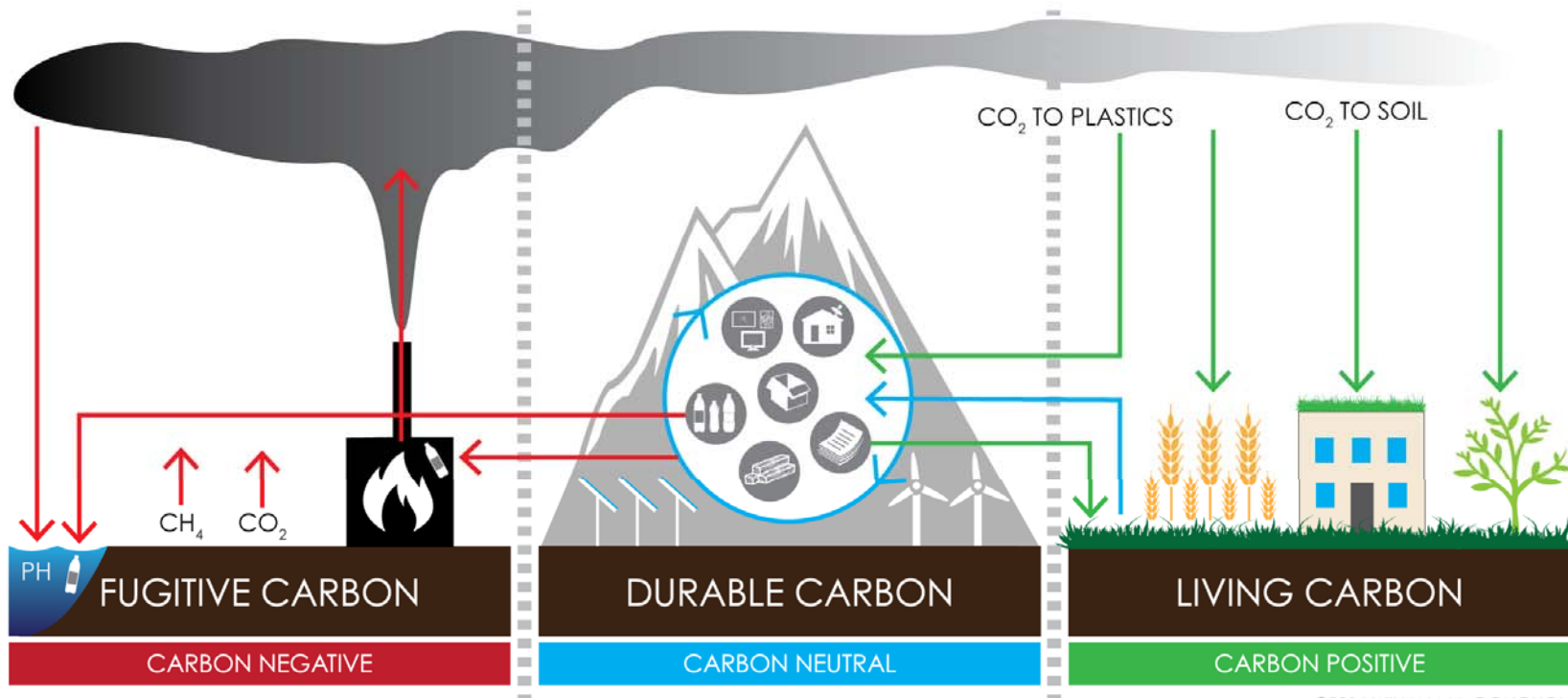
*Ingredients saludables
reciclatos eternament*



Cradle to Cradle i els SDGs

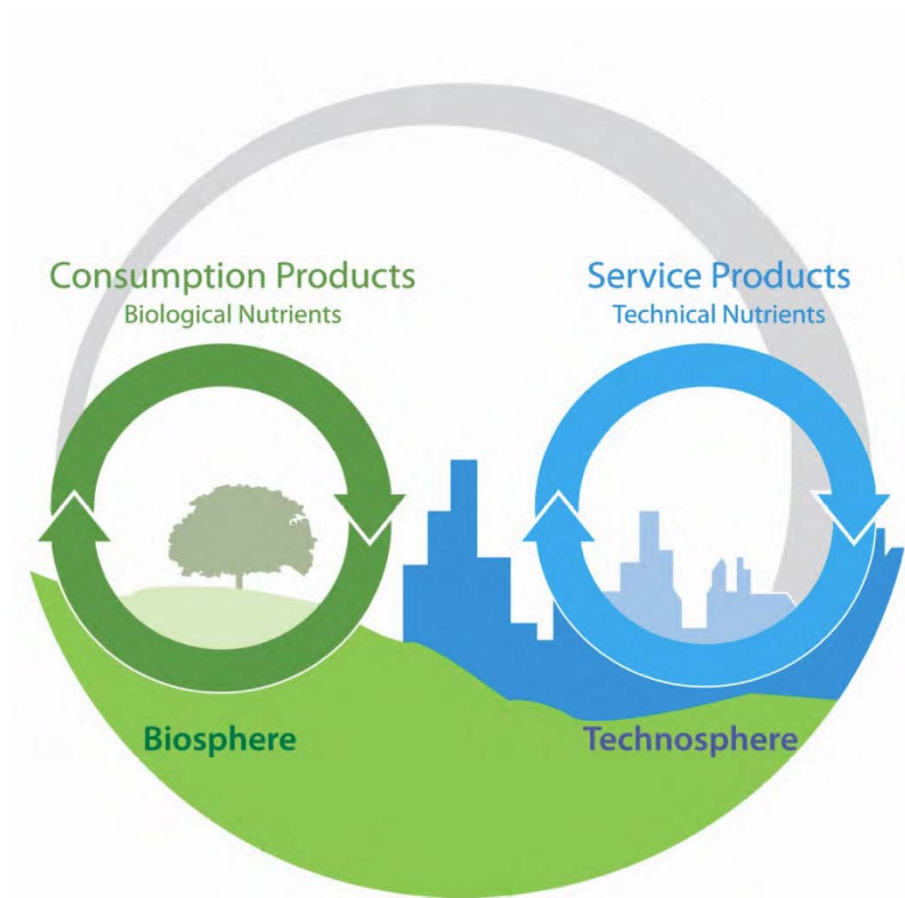


Una nova gestió del carboni





Eina de disseny i verificació de l'economia circular



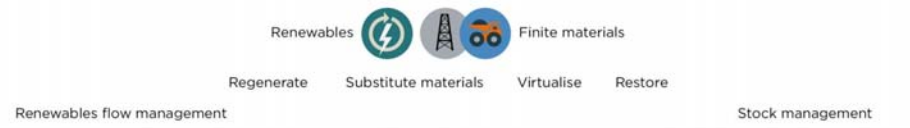
Recordem què és la economia circular

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

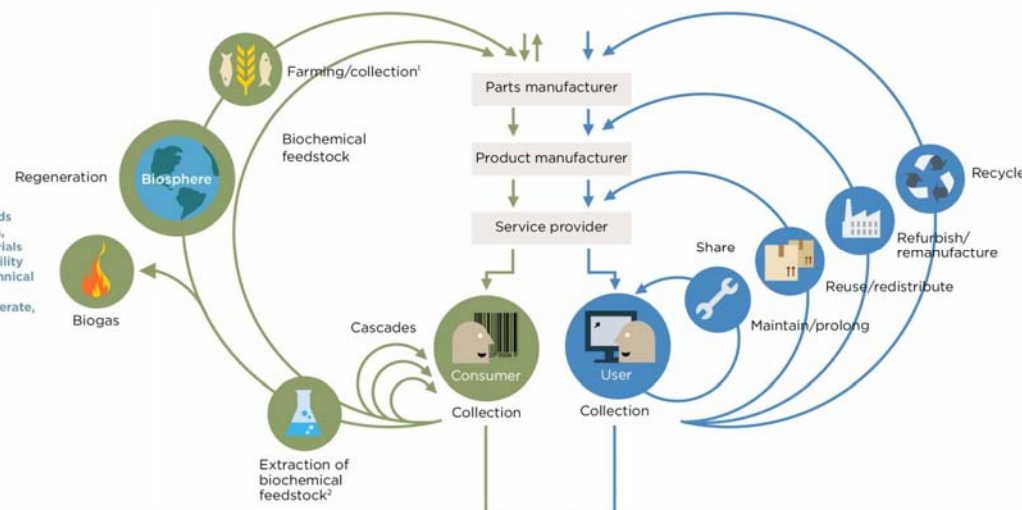
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
 ReSOLVE levers: regenerate, virtualise, exchange



PRINCIPLE

2

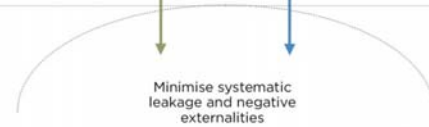
Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
 ReSOLVE levers: regenerate, share, optimise, loop



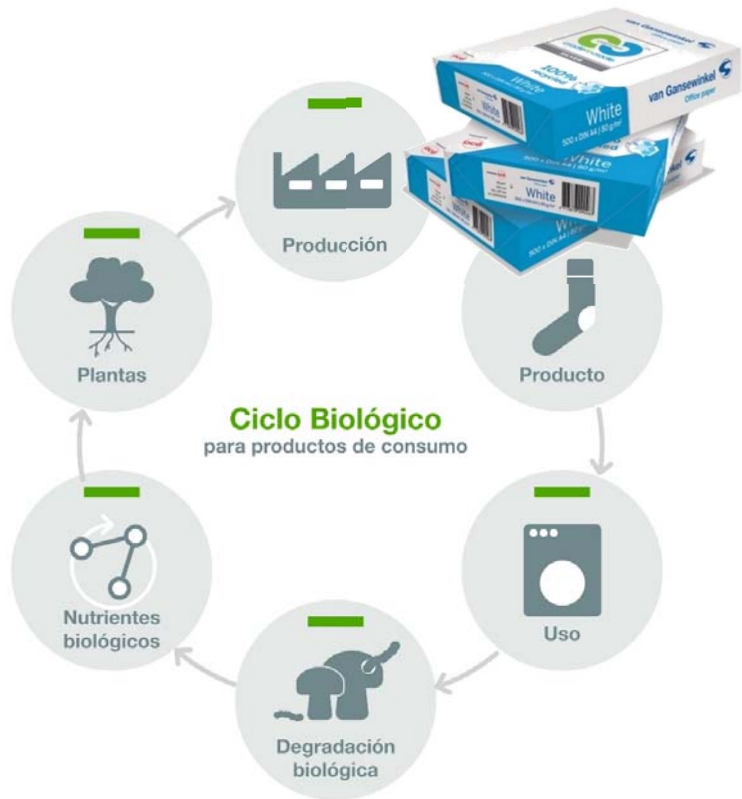
PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities
 All ReSOLVE levers



1. Hunting and fishing
 2. Can take both post-harvest and post-consumer waste as an input
 Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

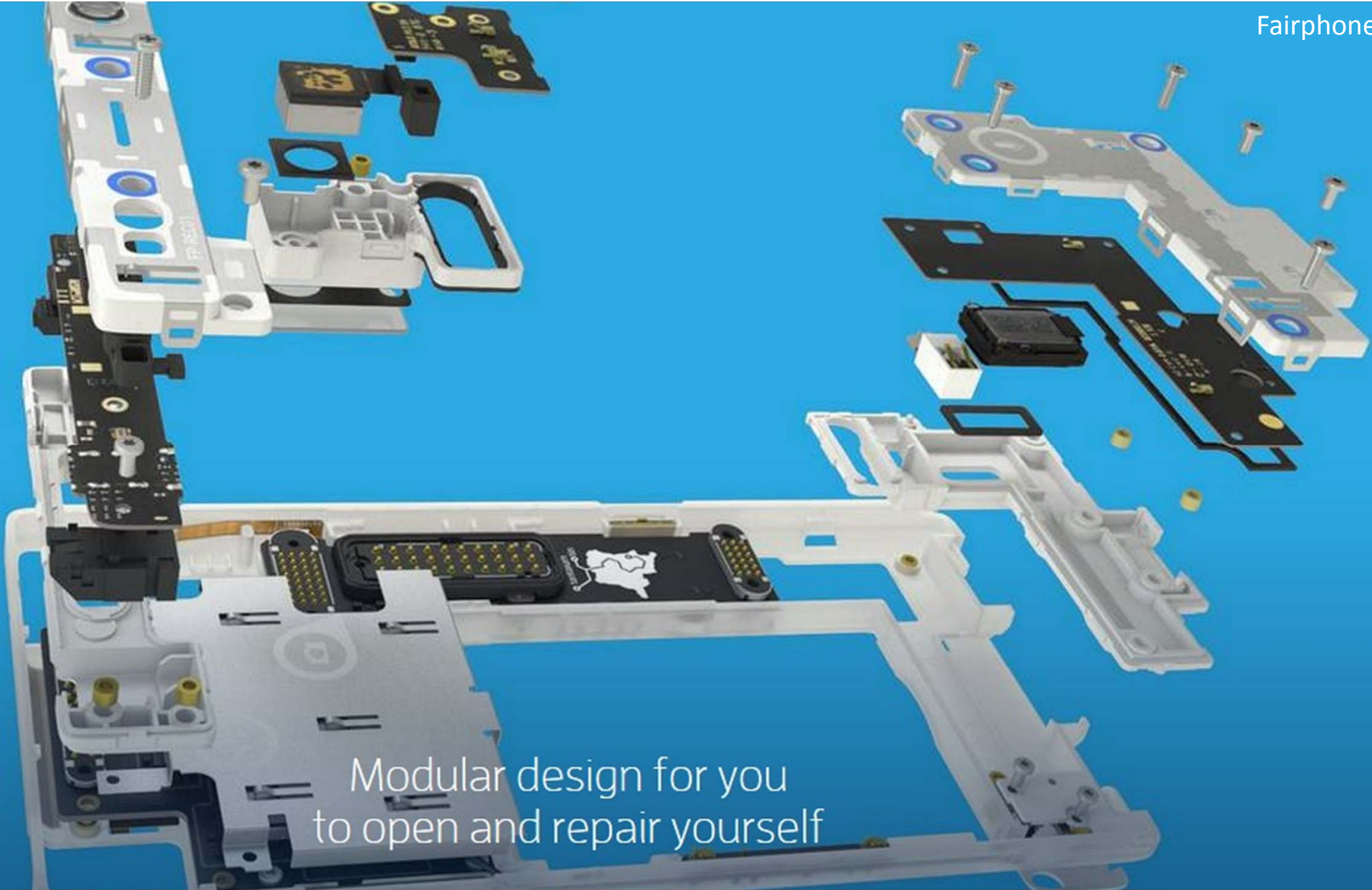


Assegurar un
segur retorn al sòl
sense danyar els
ecosistemes



Assegurar la
reutilització,
reparació,
remanufactura i
reciclatge de cada
un dels elements





Modular design for you
to open and repair yourself

Environmental impact aspect	Photocopier non-modular design		Photocopier modular design	
	Product life cycle with remanufacturing compared to product life cycle without remanufacturing		Product life cycle with remanufacturing compared to product life cycle without remanufacturing	
	Environmental savings %	Reduced by a factor of	Environmental savings %	Reduced by a factor of
Materials consumption (kg)	25	1.3	49	1.9
Energy consumption (MJ)	27	1.4	68	3.1
Water consumption (L)	19	1.2	38	1.6
Landfilled waste (kg)	35	1.5	47	1.9
CO ₂ equivalents (kg)	23	1.3	65	2.9

Assegurar un
segur retorn al sòl
sense danyar els
ecosistemes



Assegurar la
reutilització,
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un dels elements

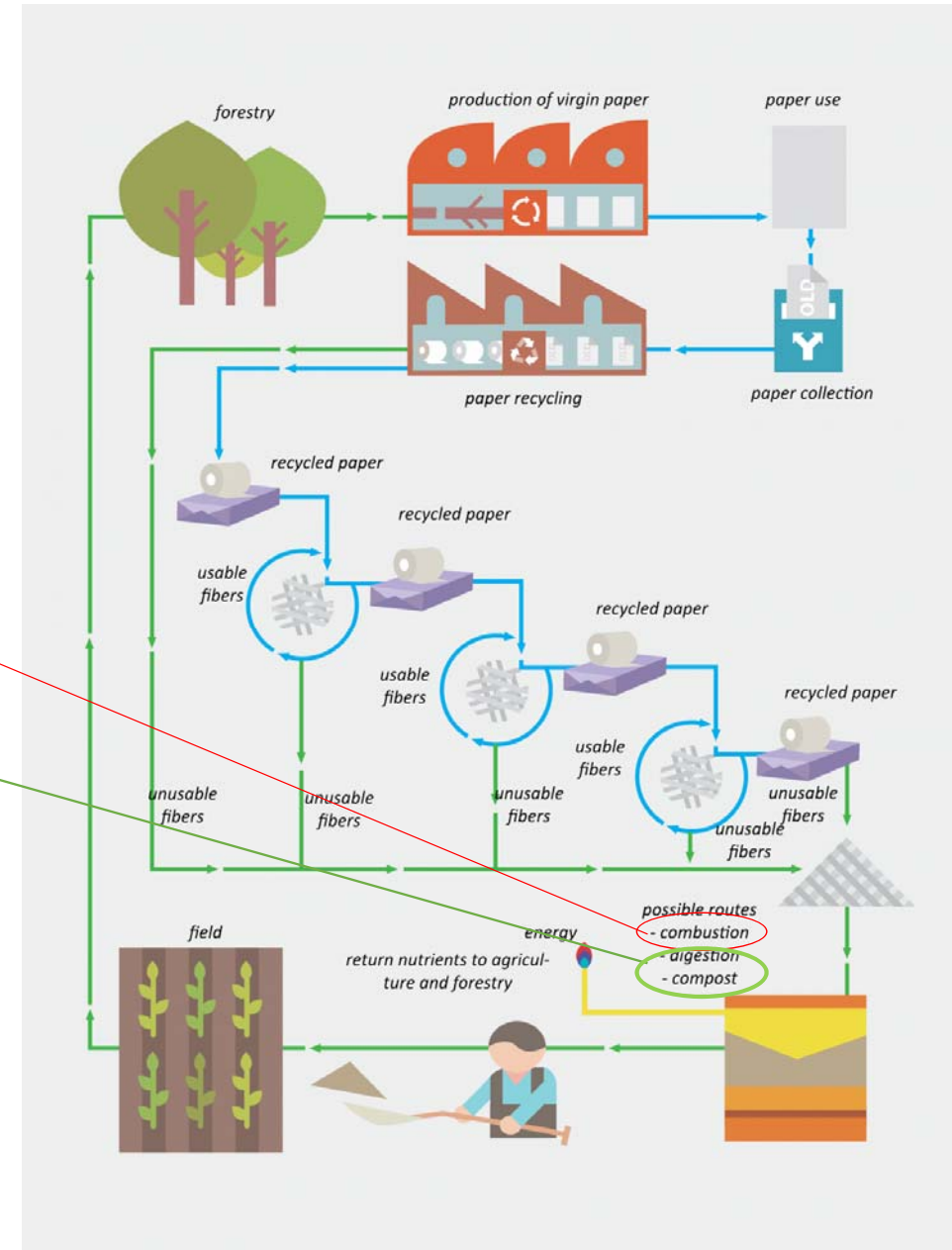


El Paper




MODEL LINEAL
COMBUSTIÓ
ABOCADOR

MODEL CIRCULAR
DIGESTIÓ ANAERÒBICA
COMPOST

Com assegurar un bon compostatge
de les fibres del paper?



Les tintes

<p>Printing Materials Gold V3.1</p>  <p>Offset solutions GREEN4PRINT BY Emerald Offset Inks are inks that consist primarily of bio-solvents and vegetable...</p>	<p>Printing Materials Silver V3.1</p>  <p>hubergroup Eco-Offset Ink Premium Plus HUBERGROUP DEUTSCHLAND GMBH Hubergroup Eco-Offset Inks Premium Plus includes a wide range out of our well...</p>	<p>Printing Materials Silver V3.1</p>  <p>Pure Aqua Printing Solutions GREEN4PRINT BY Green4Print is active in the field of sheetfed ink, coldset rotation and flexo...</p>
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News | Contact | Product portfolio



COMPANY PROFILE | WHY G4P | OUR INKS | PRODUCT PORTFOLIO

SEARCH

SUBSCRIBE NEWSLETTER

Name

E-mail address

SEND



The Low Migration High Quality ink from Green4Print is more economical than conventional ink.

NEWS

The Dutch company Green4Print, received their second (!) Cradle to Cradle Certified™ certificate. This time for the water-based printing products.



[Read more >](#)

GREEN4PRINT AWARDED LOW MIGRATION CERTIFICATE BY ISEGA

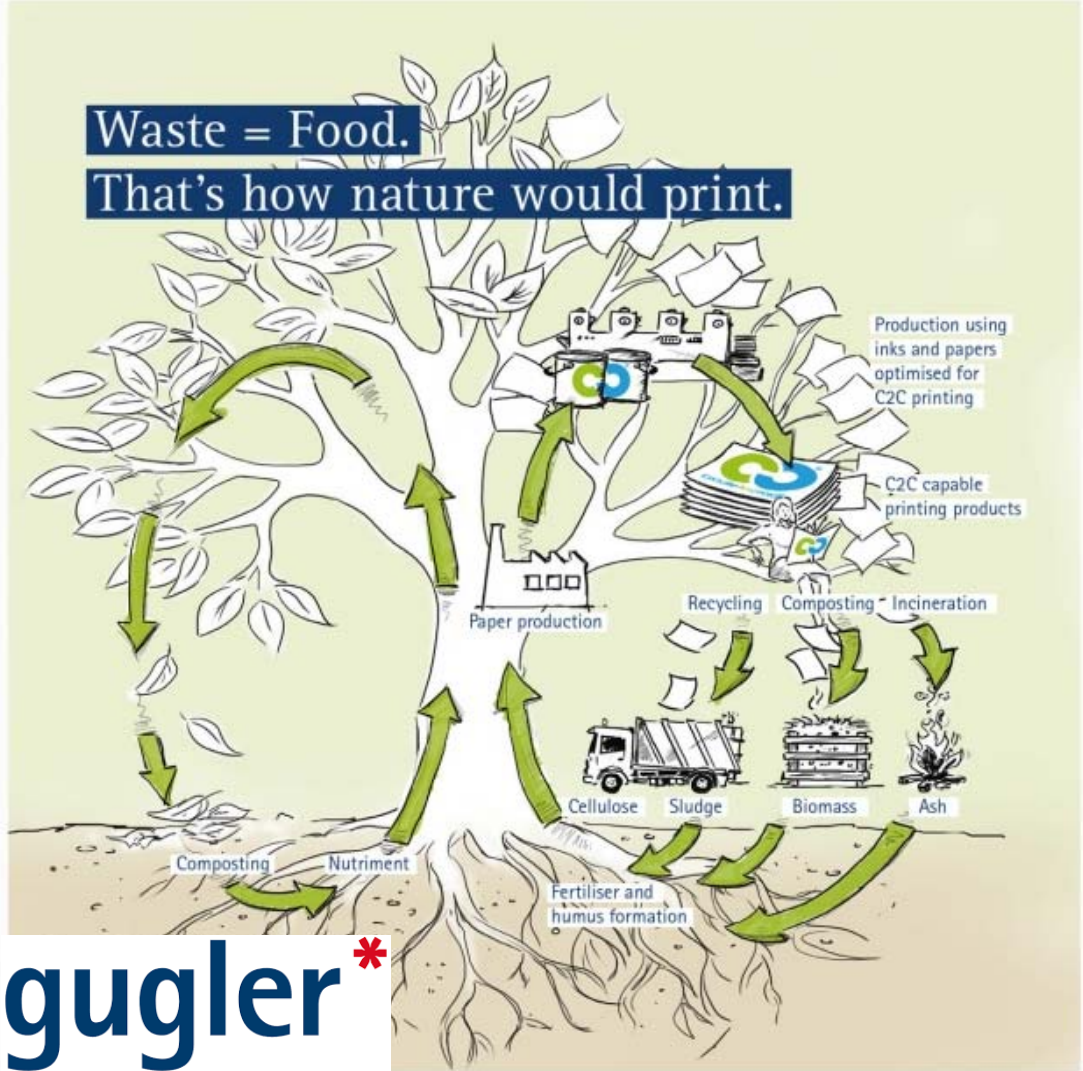
Packaging print houses are the light at the end of the tunnel for the sheet-fed offset industry. On the one hand there's a growth due to the increase in internet sales (products still have to be shipped after all) and, on the other hand, the increase and variety in food packaging.

[Read more](#)

GREEN4PRINT STARTS CRADLE-2-CRADLE PROGRAMME WITH EPEA

An important feature of business management and product development at Green4Print is the focus on the well being of all employees throughout the entire business chain. The CIC focus goes even one step further and is based on the reuse of raw materials and materials.

[Read more](#)

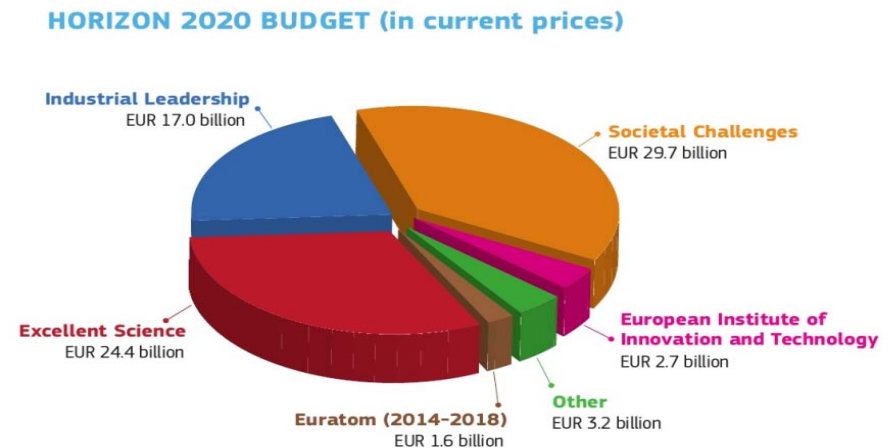




...I QUE SUCEEIX
A EUROPA?

European Commission has issued several plans and actions that will impact the market and Specially our Industry.

- **WEEE-2 Developments. Corrects and expands WEEE-I**
- **New measures in the market are a must to correct WEEE-I postulates . (Limiting harmful substances is not enough !)**
 - Eco Design
 - Hierarchy
 - Targets and goals
 - Orphan Products ban.
 - Transparency
 - Fines and enforcement
 - Fully implemented by ;
 - 15 August 2018 max.



European Commission has issued several plans and actions that will impact the market and Specially our Industry.

- **Circular Economy** plans = Transform waste in raw materials.
- Just on one program, **Horizon 2020** more than 650 Millions € investment
- Creation of the **ERN** (European Remanufacturing Network)
- Creation of “*Conseil Européenne de la Remanufacture*”.”7 January 2017.
- More than 50 measures proposed.



The cartridge case.

- **Cartridge impacts are very high during the life of the Printer.**
- **Though Printing may stabilize or even decrease the waste generation will grow.**
 - 15 years ago consumables were on the decennial scale.
 - Today they are in the milliard scale and there is a lack of standardization, both in the brand and global
 - Voluntary agreements have demonstrated no effect at all
 - On 400 million ink and 150 million laser p.a. less than 25% is collected and 50% goes to landfill !!



The cartridge case.

- Environmental and consumer abuse is so evident that European Commission issued on 15 of July a call for tenders to nalize the Cartridge reusability:
- Call for tenders; ENV/B:·/ETU/2016/00XXMV
- “Study of the implementation of product design requirements set out in article 4 of the WEEE Directive. The case of reusability of printer cartridges.”
- Assigned and on actual development



The cartridge case.

Call for tenders; Abstracts

- Page. 12: “So far little progress appears to have been made in the implementation of this requirement “
- Page. 13; “In order to address the implementation of the product design requirement under article 4the case study of printer cartridges has been selected. Printer cartridges are a typical example of equipment that can be reused many times before coming to the end of the life”
- Page. 14 ; “From a consumer perspective, ink and toner cartridges constitute a 63% of the expenditure of 256 billion € over the life time of a printing device”
- Page. 14; “ The objective of the contract is to produce a study to assist the Commission assessing the implementation on the ground of article 4 of the WEEE directive, through the re-usability of printer cartridges and possibly of other types of EEE and in Supporting member states in improving the level of compliance with the EU legislation specially as regards promoting reuse of EEE “

The cartridge case

- **Some OEMs are foreseeing the future? The Lexmark case.**
- Today only 36% are reconditioned plastic to become 50% by 2020.
- Inversely use of recycled plastic shall drop from 61 to 50 % in favor of reconditioned parts .
- Local licensing service dealers?
- **S. N. S = Service not Seized Customers!**
- **C.N.C = Circular not Closed Economy!**

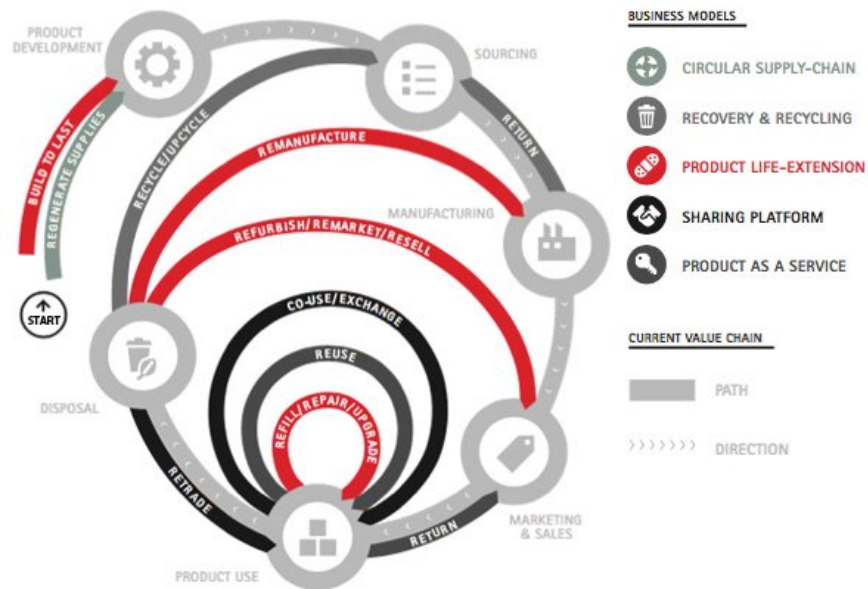




INNOVACIÓ POSITIVA

La EC i els nous models de negoci

The five circular business models

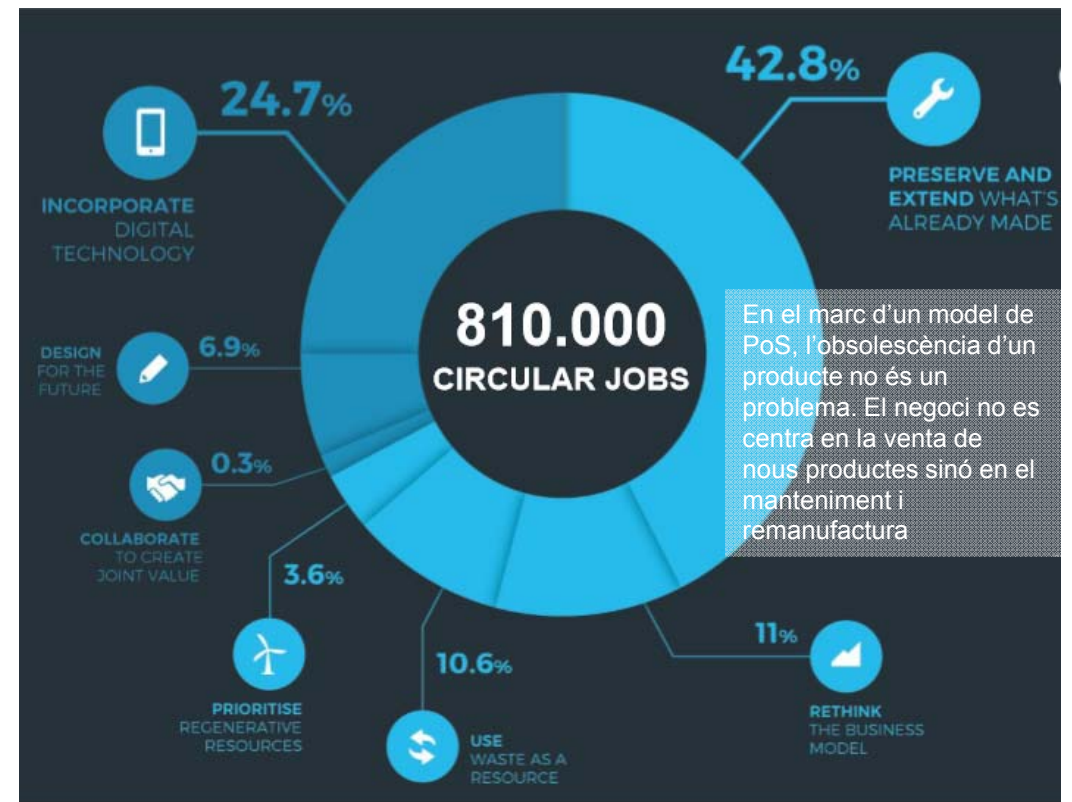
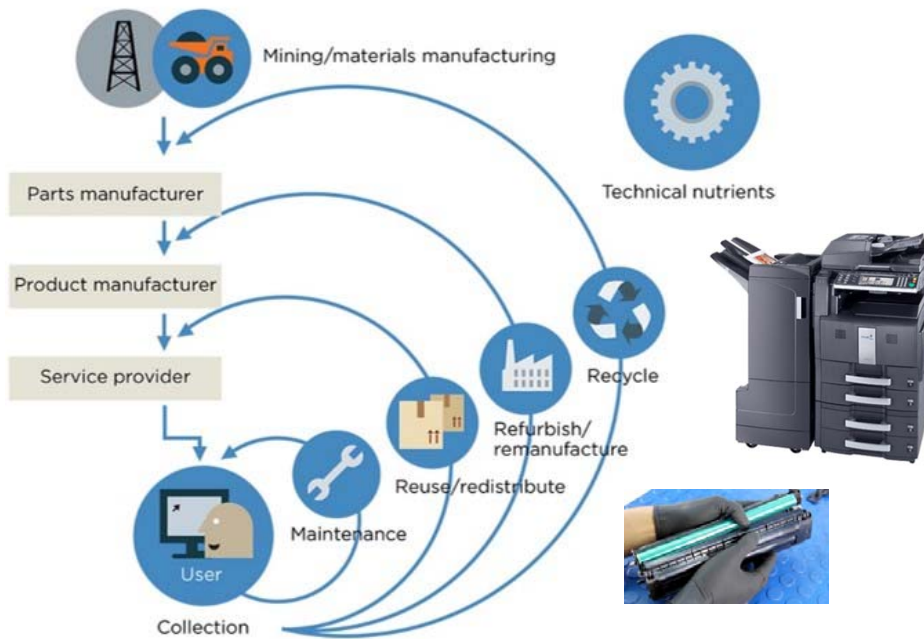


Font: Accenture

REGENERATE	<ul style="list-style-type: none"> Shift to renewable energy and materials Reclaim, retain, and restore health of ecosystems Return recovered biological resources to the biosphere
SHARE	<ul style="list-style-type: none"> Share assets (eg cars, rooms, appliances) Reuse/secondhand Prolong life through maintenance, design for durability, upgradability etc
OPTIMISE	<ul style="list-style-type: none"> Increase performance/efficiency of product Remove waste in production and supply chain Leverage big data, automation, remote sensing and steering
LOOP	<ul style="list-style-type: none"> Remanufacture products or components Recycle materials Digest anaerobically Extract biochemicals from organic waste
VIRTUALISE	<ul style="list-style-type: none"> Dematerialise directly (eg books, CDs, DVDs, travel) Dematerialise indirectly (eg online shopping)
EXCHANGE	<ul style="list-style-type: none"> Replace old with advanced non-renewable materials Apply new technologies (eg 3D printing) Choose new product/service (eg multimodal transport)

Font: EMF

Obsolescència programada en positiu



Alguns exemples



Document solutions
(pay per print)



Conventional toner cartridge
Contains over 60 components made out of various types of metal, plastic and foam



KYOCERA toner cassette
Contains 5 pieces made out of 2 types of plastic, ID coded for easy recycling

- Redisseny del cartutx
- Nou model de negoci: servei d'impressió enlloc de venda d'impressores

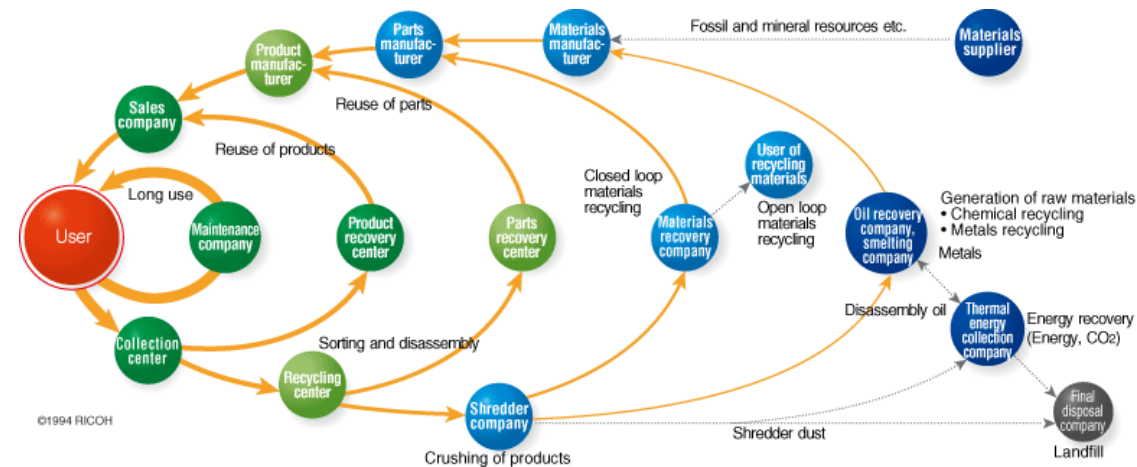


Job creation.

✓ By some estimates, the remanufacturing and recycling industries already account for about one million jobs in Europe and the United States.

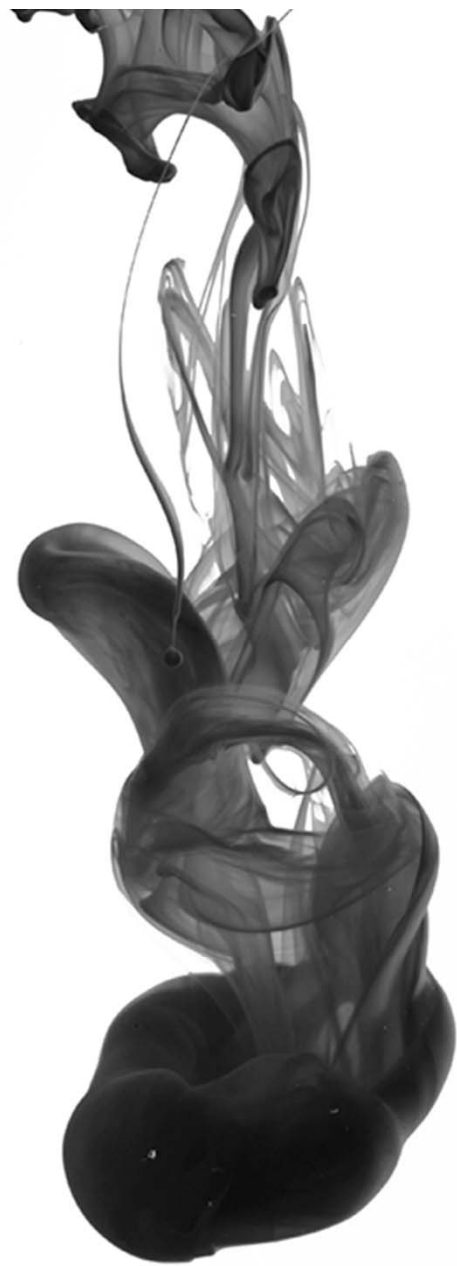
✓ Yet we see signs that a circular economy would—under the right circumstances—increase local employment, especially in entry-level and semiskilled jobs, thus addressing a serious issue facing many developed countries.

✓ Ricoh's remanufacturing plant, for instance, employs more than 300 people.





ON COMENCEM?



Col·laborem per innovare



The Print The Change Community is a pan-European network of printing companies that produce in accordance with the Cradle to Cradle™ principle: passionate pioneers in eco-friendly printing.

Our vision

International network

A network extending throughout the world, the community is made up of printing companies in the Cradle to Cradle™ segment and their supporters.

Ecology benchmarking

The community is setting green benchmarks for the Global printing industry. As a prerequisite, the production must meet the criteria of sustainability, high-end quality and competitive prices.

Cradle to Cradle™ development

The community is collaborating on the development of additional Cradle to Cradle™ printing products. Salutory products without any problematic substances – good for the nature, good for our health.

Sharing of knowledge

The community constitutes the information and knowledge portal for green printing to spread the news.



Which materials are certified Paper and cardboard

Offset paper = uncoated paper = pureprint natur*
Offset paper, ivory = uncoated paper = pureprint natur, ivory*

Art paper 01 = coated paper = pureprint matt 01*
Art paper 02 = coated paper = pureprint matt 02**

Cardboard ivory, uncoated = uncoated cardboard = pureprint natur card board*
Cardboard, coated = coated cardboard = pureprint matt card board**

additional paper and cardboard soon to come

Inks

CMYK printing inks = offset printing ink*

Dispersion varnish, silk-matt, for coated paper = dispersion varnish for coated paper*

Process chemicals and further processing

Printing powder*

Stapling glue*

Glue for binding*

Glue for folding boxes, mailings...*

Healthy Printing!

Here's something you can do right now to improve your organisation's beneficial footprint!

Everyone benefits from printed paper. It is in our packaging, publications, photographs, homes and offices. However, printing substances used with paper can affect food quality and recyclability.

Printing associations and regulators have standards for safer printing, but these could be improved, and the good news is that healthier inks are already in the marketplace!



EPEA, with support from the DOEN Foundation, launched a healthy printing initiative to scale up availability of those healthier substances in printed publications and packaging, and invites its customers and partners to join the alliance.

Everybody uses printing, but until now there was nowhere for buyers and suppliers to work together to develop economy of scale for healthy printing. This initiative fills that gap. It aims at making printed paper a more economical resource for recycling and composting.



printing for packaging



printing to improve recycling



printing for publishing

Printing affects millions of tonnes of new paper products and most recycled paper. With this initiative we aim to make healthy printing more available to everybody.

We are inviting every EPEA partner as well as print media, from packaging manufacturers to printers and suppliers of inks, to join the initiative as a frontrunner, and become a big driver of healthy printing.

For more information take a look at the [flyer](#), or contact EPEA.



Healthy printing!



© Healthy Printing

Building Blocks

Cal començar amb una **llista d'elements positiva.**

Les possibilitats dolentes són milions, les possibilitats positives són poques, comencem amb aquestes.



Què busquem?

NETES

- Eliminar olis minerals.
- Components lliures de CRM. Deixar d'utilitzar organohalogenats
- Compatibles amb reciclatge

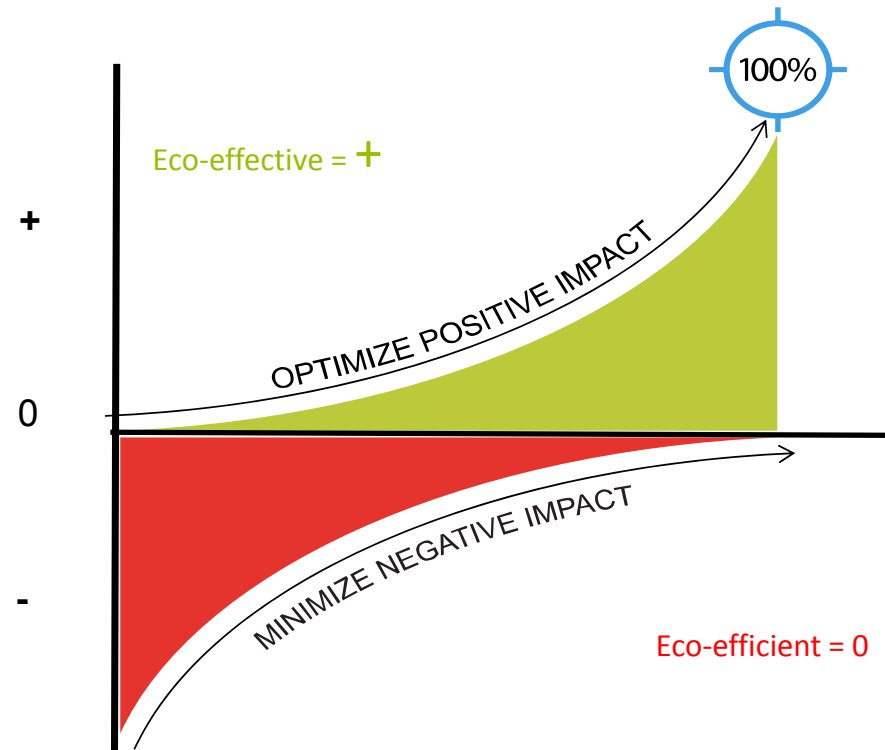
FÀCIL DE DESTINTAT

- No contaminen els llots de la depuradora
- Propietats biodegradables superiors



Altres beneficis

- Anticipació amb normativa
- Anticipació per pèrdua al medi ambient
- Reciclatge efectiu
- Creació de llocs de treball
- Resiliència



Gràcies per la vostra atenció



eco intelligent growth

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