Breaking GOOD news!

- *Tell the story of your BGN?*
- *Why did you choose it?*
- *Prepare 1 question for your classmate*
- *Can't Read!*
- *Post on FB*

In 1992, the United Nations and its member states, alerted to the seriousness of global warming by the scientific community, decided to take steps at global level. They established a UN framework convention on climate change, the UNFCCC, which provided the starting point for increased monitoring of climate change.

196 signatories

(195 states + the European Union)

These signatories are designated as Parties to the UNFCCC, and meet every year under the leadership of the UN. They have their own scientific body, the IPCC (Intergovernmental Panel on Climate Change).

COP, what's that?

They are the Conferences of the Parties, the signatories to the UNFCC. One a year has been held since 1995.

And CMP?

CMP (*Conferences of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol*) refers to meetings of the Parties to the Kyoto protocol. There has been one a year since 2005, when the protocol came into force.

1997

Signature of the Kyoto Protocol

2005

Kyoto Protocol came into force

2008-12

Kyoto Protocol reduction commitments

2015

New binding Agreement

COP21/CMP11 aims to achieve a new climate agreement that will apply to all countries from 2020 and establish tools for responding to the challenges.

Emissions reduction targets

- ***A future international binding agreement.*** *All countries must publish its national contributions.*
- ***A Summary of contributions*** *will be published after the conference*

Financial support for developing countries

- ***Mobilize 100 billion$*** *from states to help developing countries to fight climate disruption*

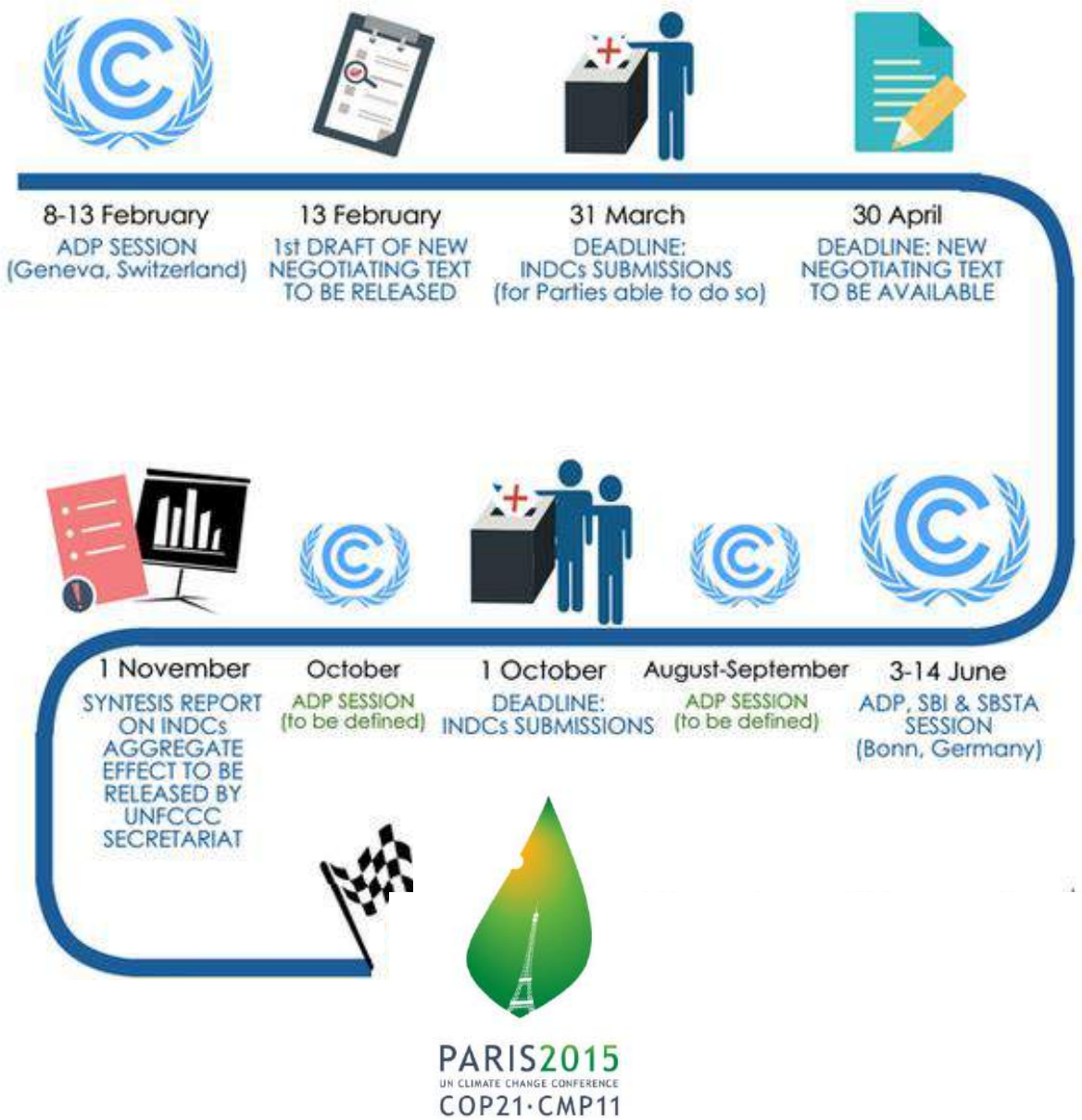
Implementing ambitious solutions

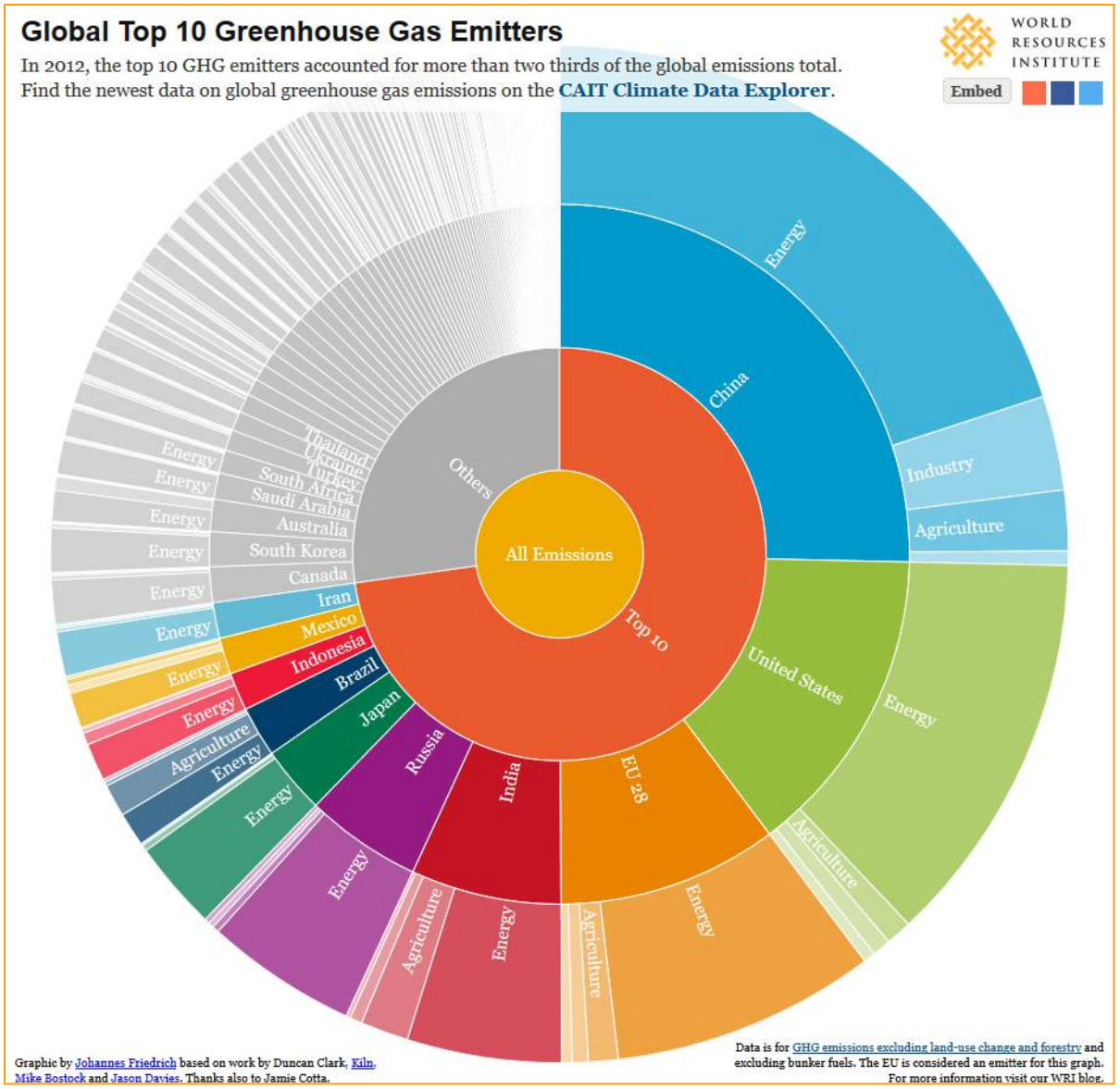
- ***Many large-scale initiatives are currently being developed*** *by a variety of non-governmental bodies*

ecodigma

The way to COP 21

LIMA COP20 | CMP10
UN CLIMATE CHANGE CONFERENCE 2014





- ***10 countries*** *represent* ***72 %*** *emission of GHG*
- ***6 out of 10 countries are developing countries***
- *The energy sector is the main source of GHG*

http://ovacen.com/cambio-climatico-puntos-clave-acuerdo-cop21/

Key Insights from COP 21

395 countries approved a legally binding agreement and now they have a year to sign it

Enter into forces in 2020, with revision every 5 years in term of NDC's and finance methods

2 degrees max (ref pre-industrial levels) with a global effort to limit at 1,5 degrees. So far, NDC's give an increase of 2,7 degrees.

3 main challenges:
. Finance – 100 Billions a year from developed to developing countries
. Differentiation targets between richest and poorest countries. Different scenarios from Mitigation and Adaptation strategies

No real responsibility for any further loss & extreme weather effect

NDC's: Nationally Determined Contributions

Session 6:

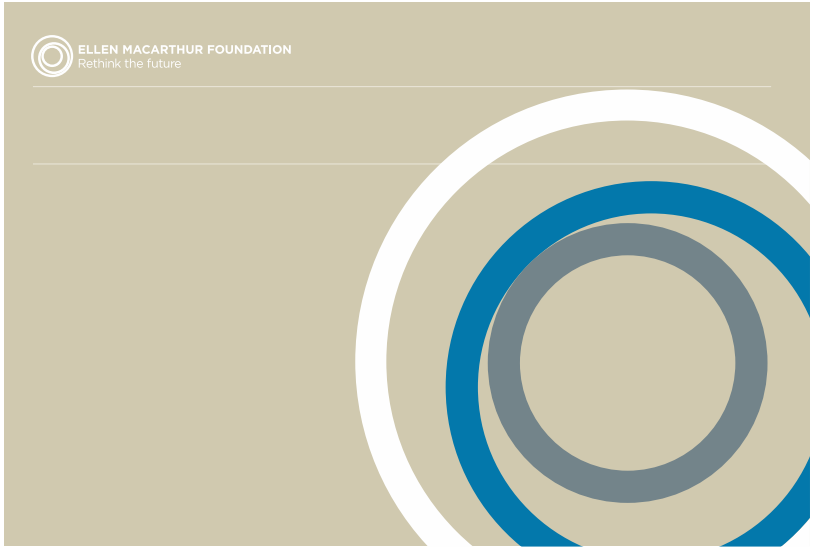
Circular Economy

Quote of the day

"You never change something by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."

Buckminster Fuller

Circular Economy

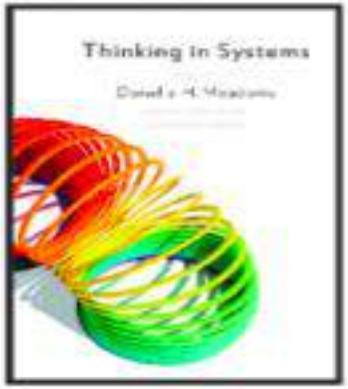


http://www.ellenmacarthurfoundation.org/

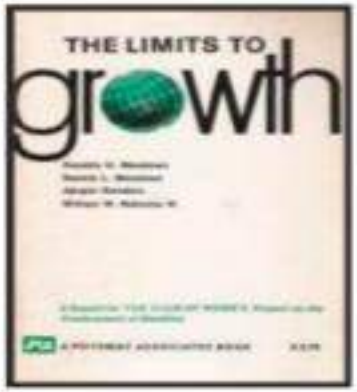
Circle Economy

http://www.circle-economy.com

Circular economy thinking finds its roots in



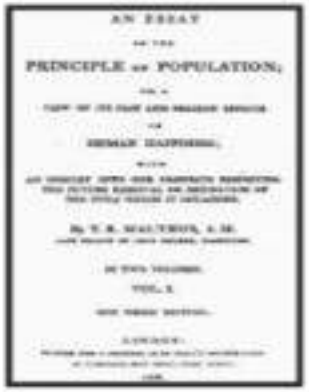
2008



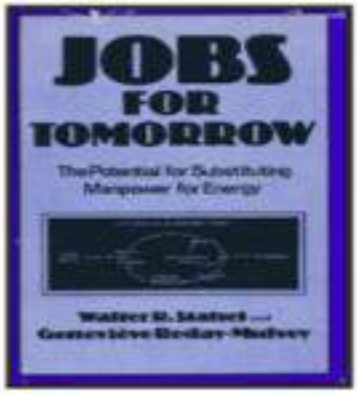
1972

2002

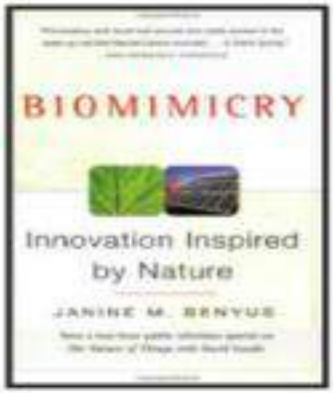
2010



1798



1976



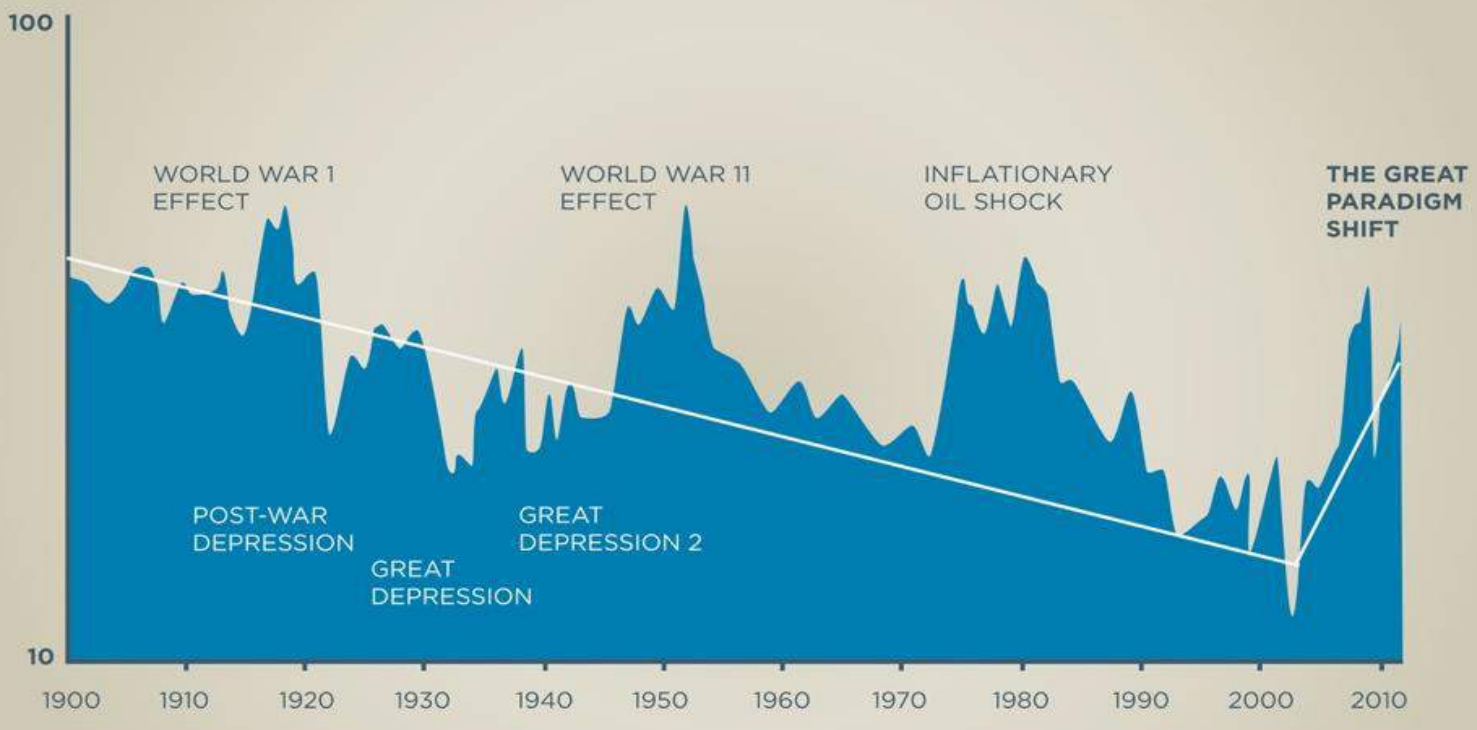
1997

Shift to Selling products as Services

(ref.Walter Stahel-Performance economy)

http://www.product-life.org/en/major-publications/the-product-life-factor

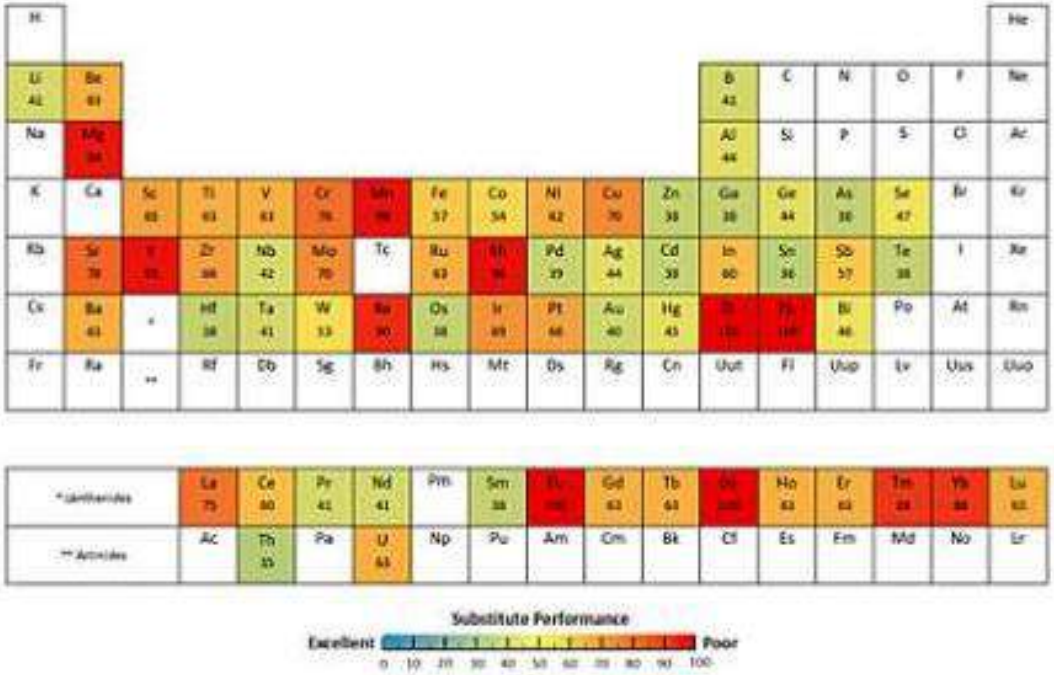
COMMODITY INDEX PARADIGM SHIFT?



CREDIT: GMO

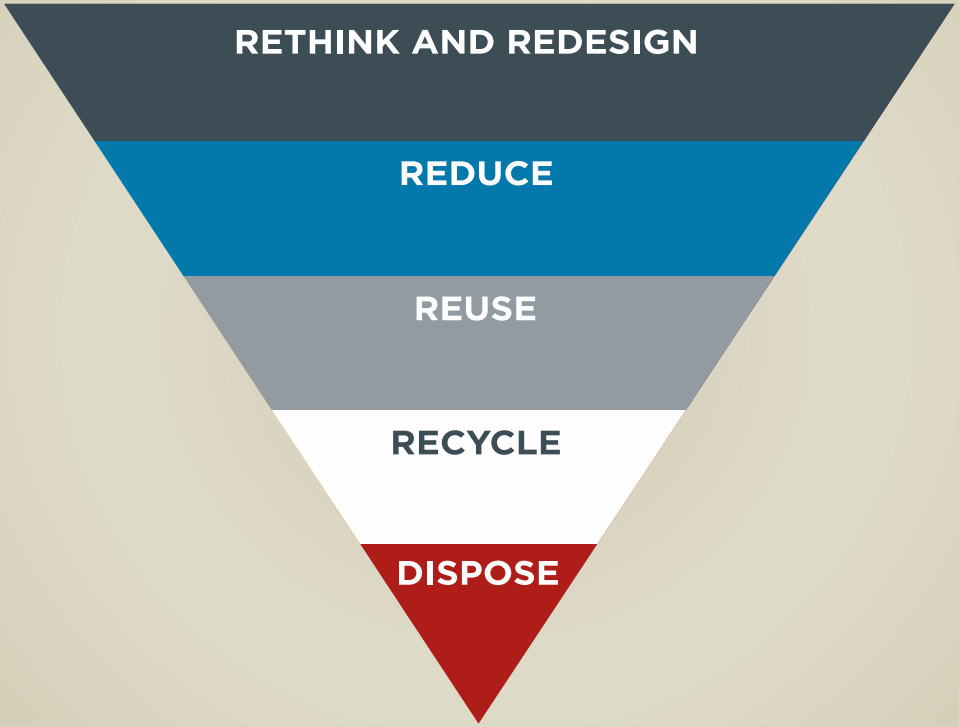
ELLEN MACARTHUR FOUNDATION

Resources Scarcity



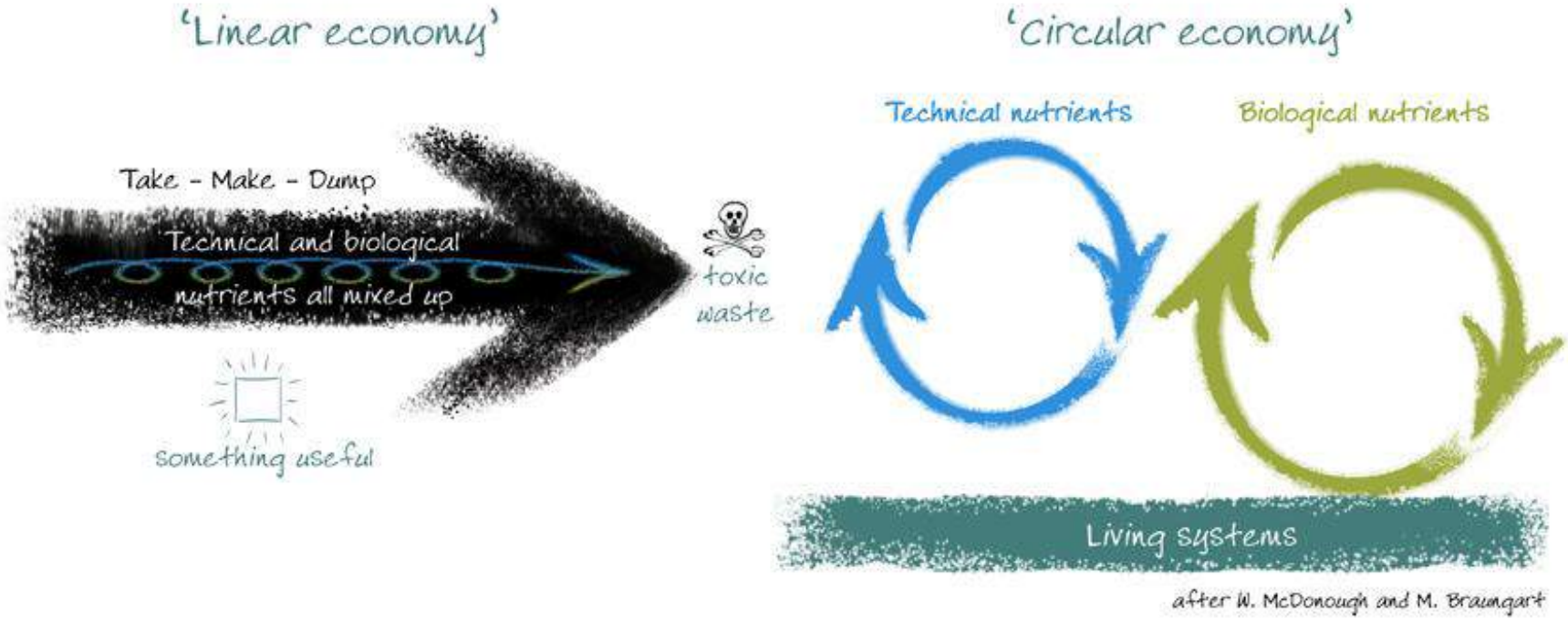
Circle Economy
Make it happen from start to start

HIERARCHY OF WASTE



ELLEN MACARTHUR FOUNDATION

WASTE = FOOD



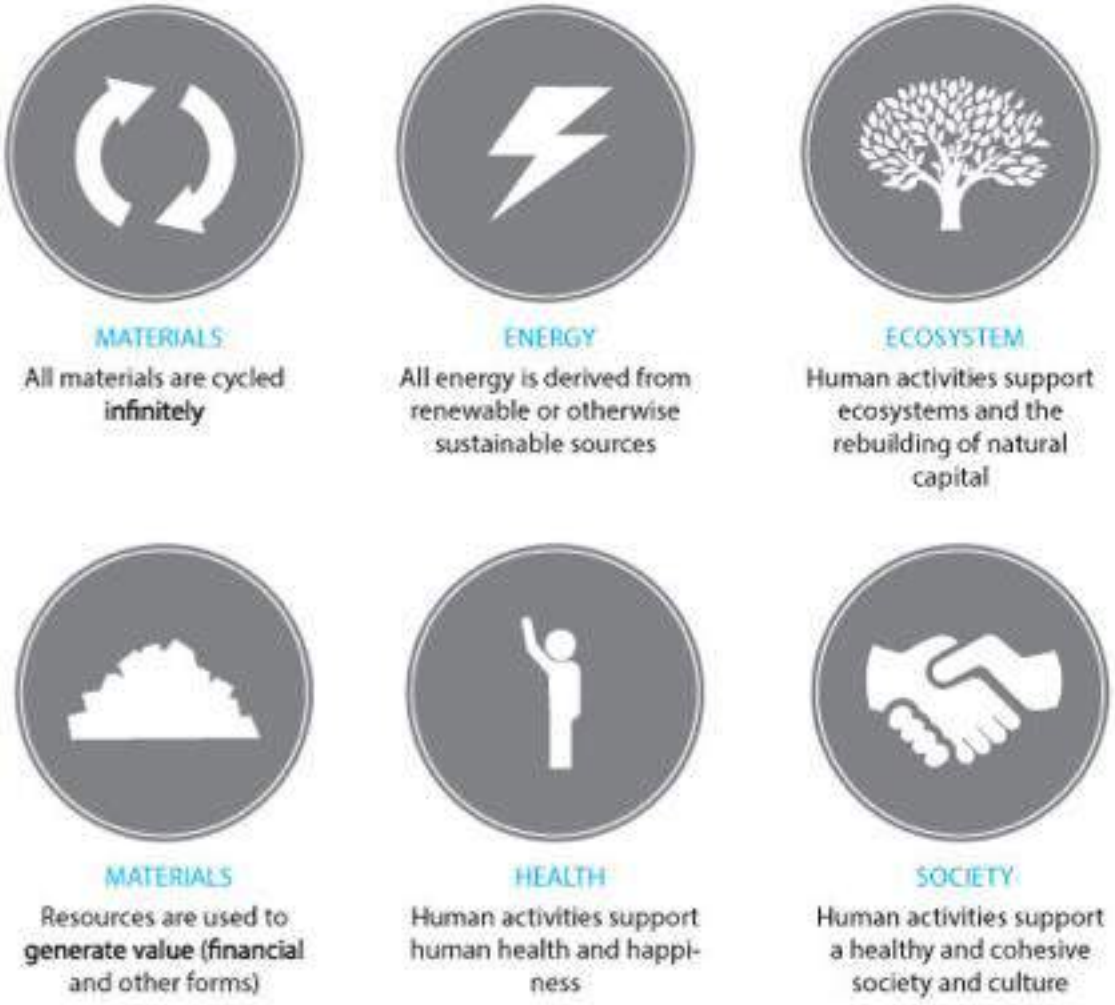
An economy that is

REGENERATIVE BY DESIGN

Source: 'Sense and Sustainability - Educating for a low carbon world', Ken Webster and Craig Johnson. TerraPreta, 2008

Richard Crookes

Visioning the Circular economy



Circular Economy Business Model examples

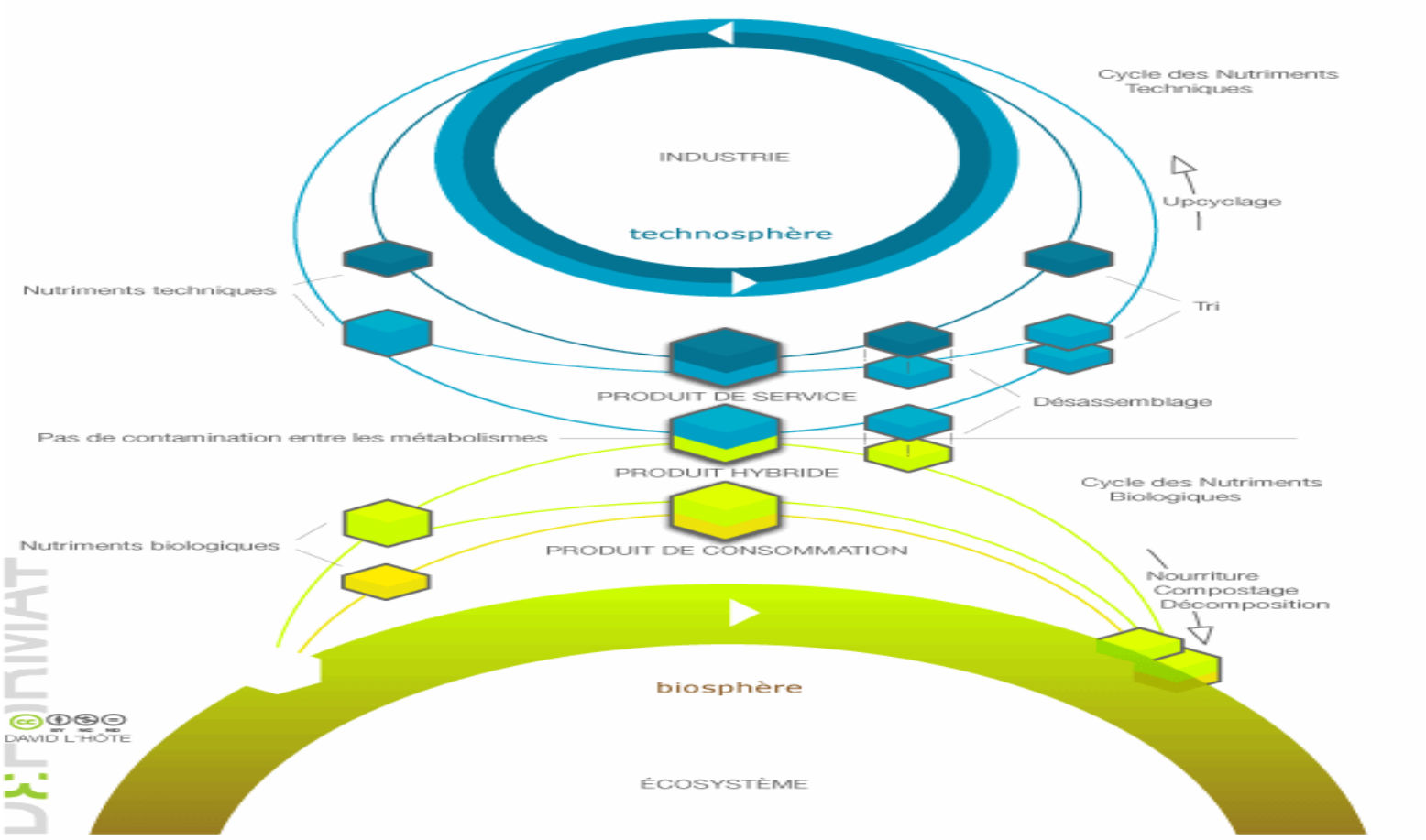
Circular business model	Description	Examples
Ownership to usage	Service and lease concepts where producers remain owner	PHILIPS, MUD JEANS
Waste as a resource	Repurpose (organic) residual material flows for new applications	Interface, FrieslandCampina, KICI
Smart recycling	Integrated reverse flow of material and recyclates trading	DSM
Second life sales	Recover residual product value in new segments by retake and resell	AkzoNobel
Assets and goods sharing	Monetize utilization of goods and assets instead of volume transactions	FLOOW2 world's reset button

Opportunities of the circular economy

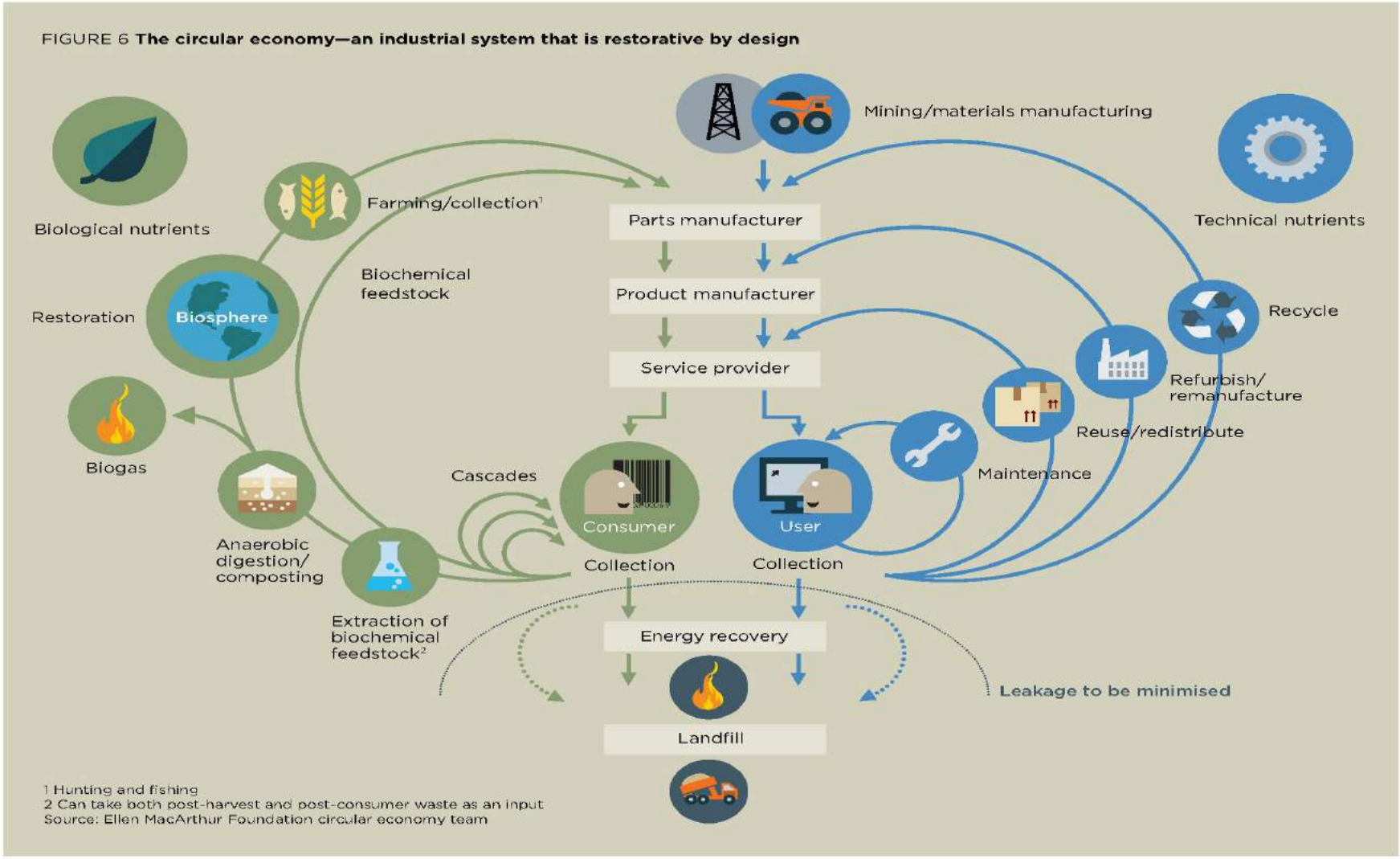
economics	environmental	social
New business models	Resources optimization	Relocalization of activities
		
Shared value creation	Make waste disapear	Jobs creation

Two materials flows – the key understanding –

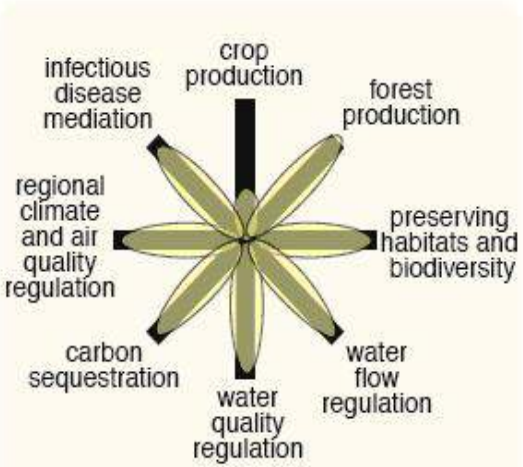
materials as 'nutrients' (after McDonough and Braungart)



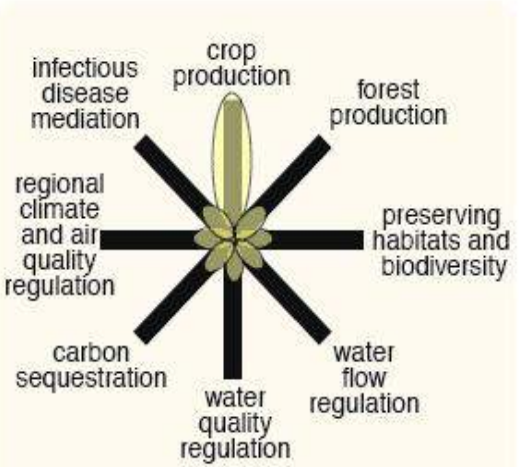
Circular economy in detail
(EMF/McKinsey report)



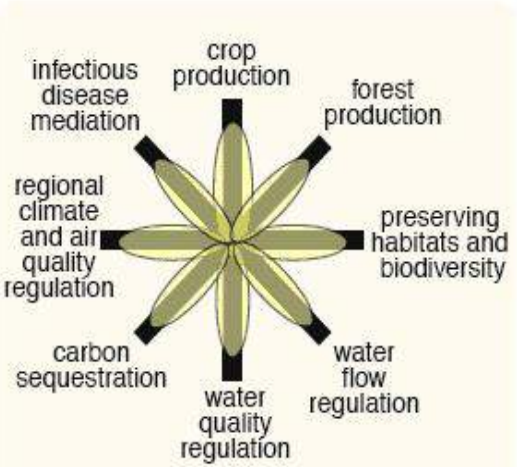
CE Feature: Diversity, resilience and scale



natural ecosystem



intensive cropland



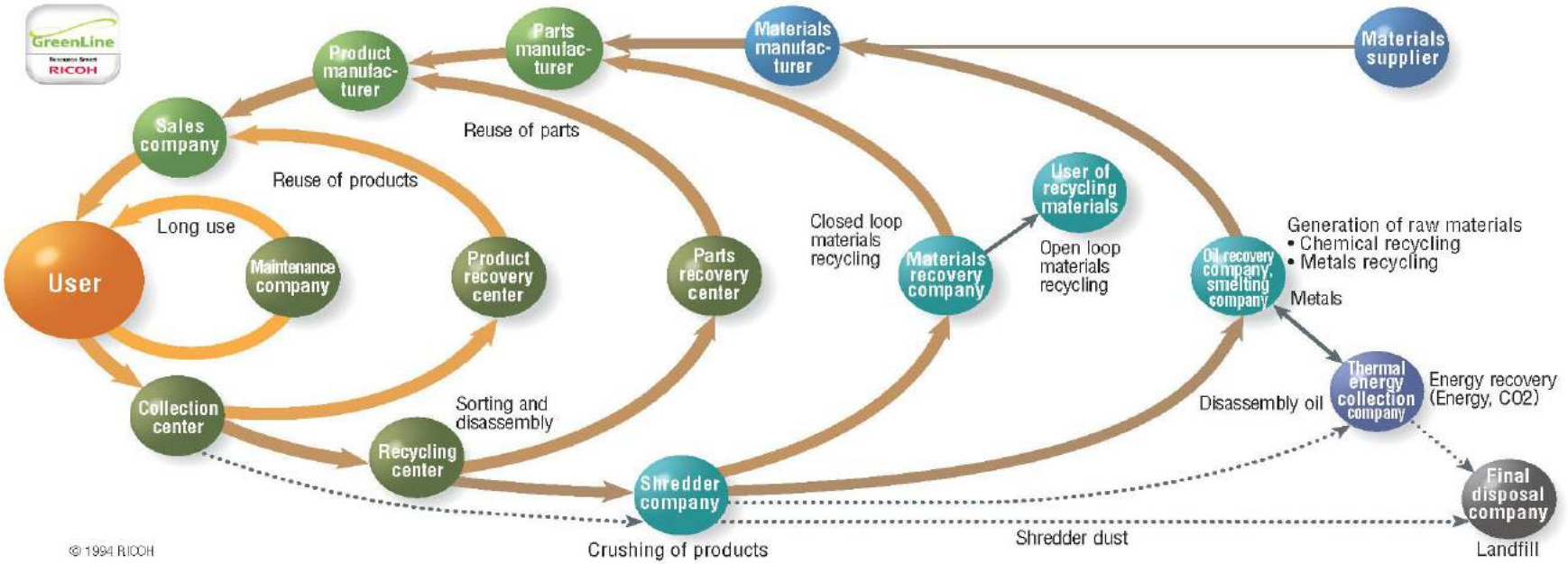
cropland with restored ecosystem services

ility

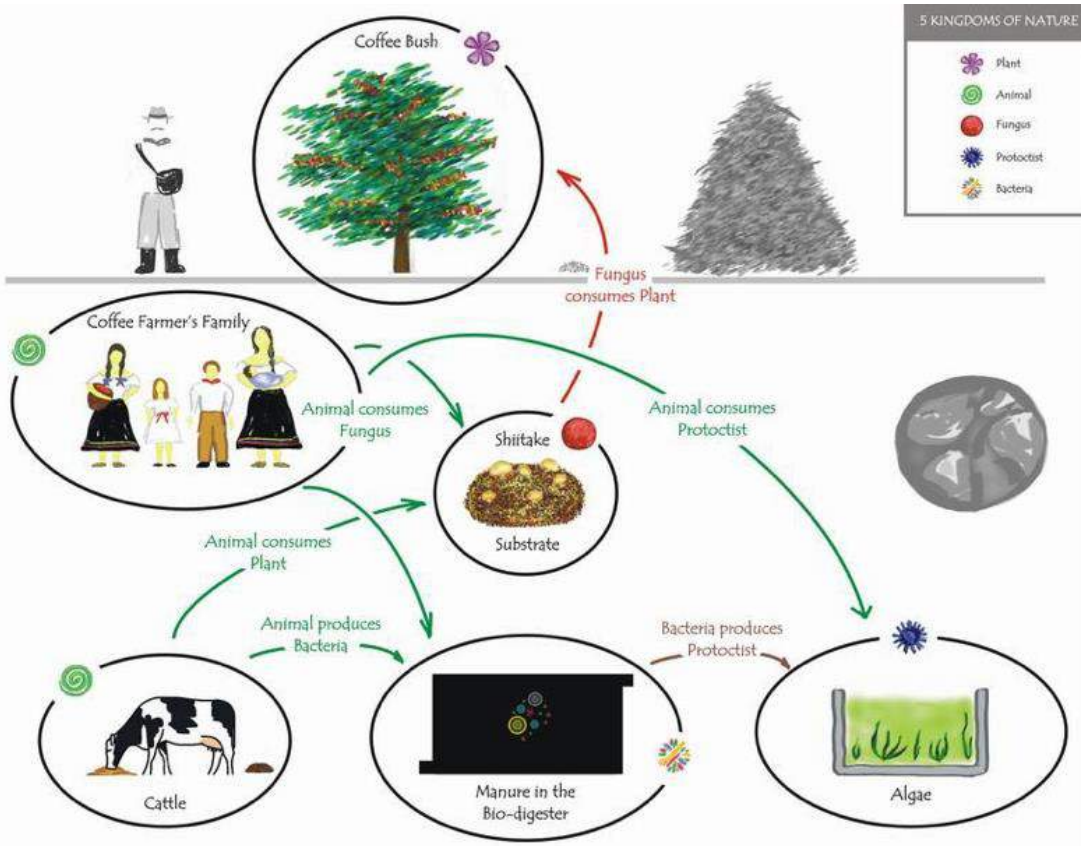
Ricoh (Technical nutrient cycle)

RICOH
imagine. change.

FIGURE 7 **The circular economy at work: Ricoh's Comet Circle™**



ZERI (Biological nutrient cycle)



Coffee consumed by the coffee drinker represents **only 0.2% of the biomass generated** by the coffee plantation. **The remaining 99.8%** of the coffee plant and bean is considered **waste**

ZERI wanted to find a way to make use of that waste to generate additional income for the coffee farmers. But they also sought to create more of a closed-loop ecosystem, in which rather than having waste products that end up in rivers or landfills, or are burned, those wastes are themselves used within the system.

Quote of the day

"If the machine inspired the industrial age, the image of the living system may inspire a genuine post industrial age. "

Peter Senge,
in Sloan Management Review

RESEARCH

Industrial Ecology in Practice

The Evolution of Interdependence at Kalundborg

John Ehrenfeld
Nicholas Gertler*
Technology Business and Environment Program
Massachusetts Institute of Technology
Cambridge, Massachusetts, USA

One of the best-known examples of industrial ecology can be found in Kalundborg, a small industrial zone 120km west of **Copenhagen in Denmark**. Over time, this unplanned industrial park has **evolved from a single power station into a cluster of companies that rely on each other for material inputs**.

The project began in 1972 and by 1994**, 16 contracts had been negotiated**. The extent of the material and energy exchanges in 1995 was about 3 million tonnes a year. **Estimated savings totalled US $10 million a year, giving an average pay-back time of six years**.

The core participants are:

. Asnaes, Denmark's largest coal-fired power station;

. An oil refinery owned by Statoil;

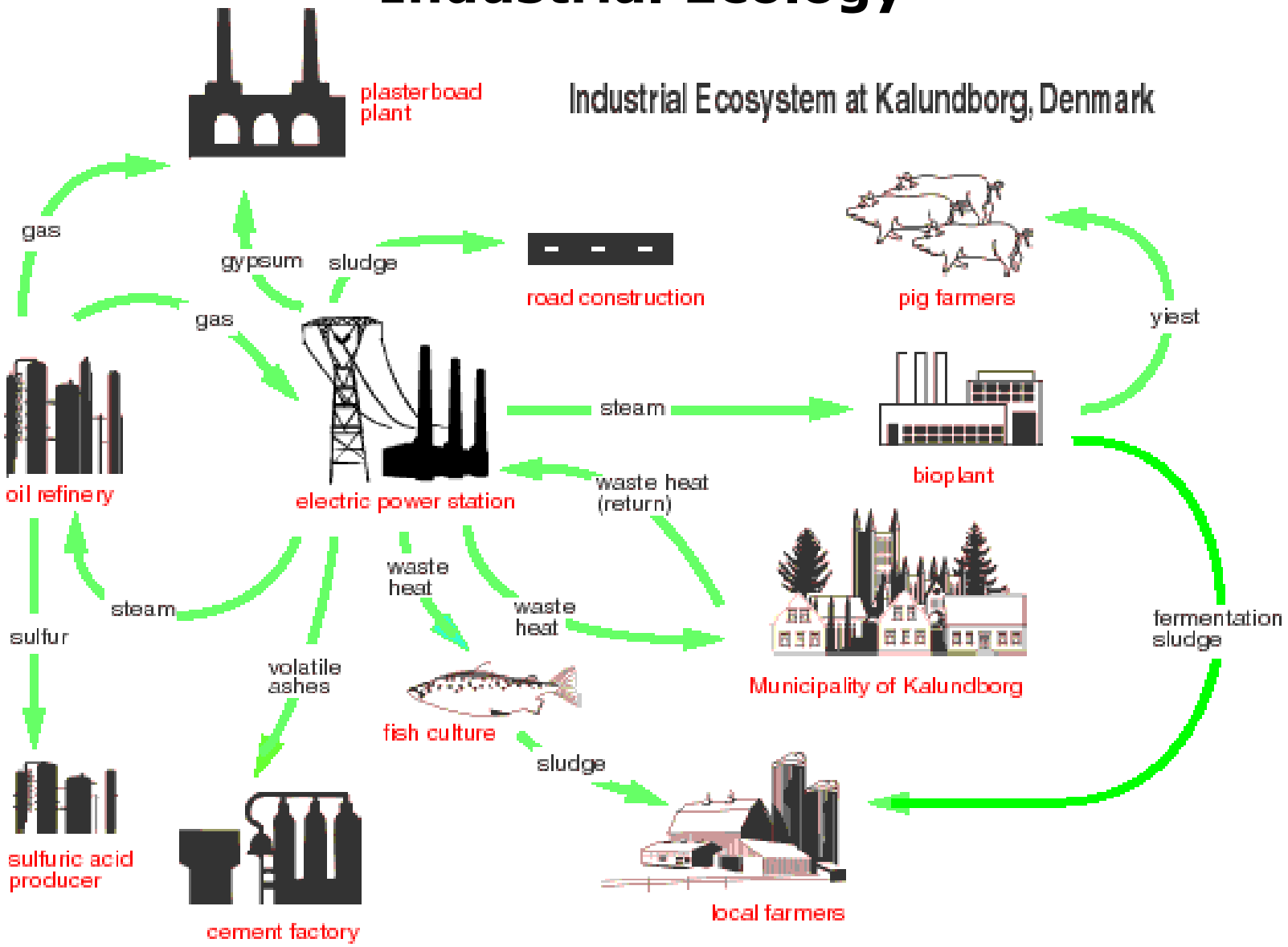
. A pharmaceuticals plant owned by Novo Nordisk;

. Gyproc, Scandinavia's largest plasterboard manufacturer;

. The municipality of Kalundborg, which distributes water, electricity and district heating to around 20,000 people.

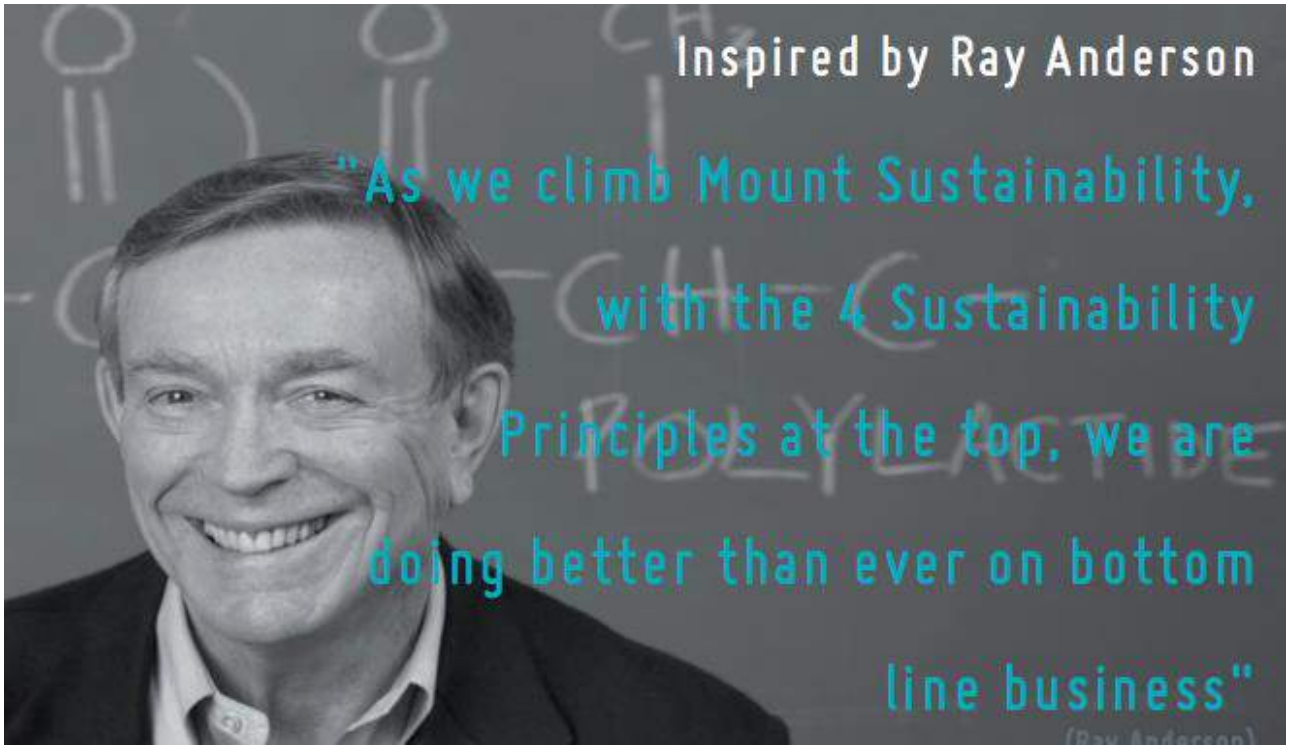
The symbiosis has grown over the years to include partners from other districts, as well as farmers.

Industrial Ecology



http://en.wikipedia.org/wiki/Kalundborg_Eco-industrial_Park

Interface



THE OPPORTUNITY: A new sense of purpose

"To be the first company that, by its deeds, shows the entire industrial world what sustainability is, in all its dimensions: people, process, product, place and profits – and in doing so, become ***restorative*** *through the power of influence"*

7 FRONTS

FRONT 1 – ELIMINATE WASTE

FRONT 2 – BENIGN EMISSIONS

FRONT 3 – RENEWABLE ENERGY

FRONT 4 – CLOSE THE LOOP

FRONT 5 – RESOURCE EFFICIENT TRANSPORTATION

FRONT 6 – SENSITIZE STAKEHOLDERS

FRONT 7 – REDESIGN COMMERCE

1. Eliminate all forms of waste in every area of business.
2. Eliminate toxic substances from products, vehicles and facilities.
3. Operate facilities with 100% renewable energy
4. Redesign processes and products to close the technical loop using recovered and bio-based materials
5. Transport people and products efficiently to eliminate waste and emissions.
6. Create a culture that uses sustainability principles to improve the lives and livelihoods of all of our stakeholders – employees, partners, suppliers, customers, investors and communities.
7. Create a new business model that demonstrates and supports the value of sustainability-based commerce

A CLOSER LOOK ON

FRONT 1: ELIMINATE WASTE

DEMATERIALIZATION:

Entropy is an Interface carpet tile design that imitates the random way in which leaves carpet a forest floor. The inspiration for this design came from Janine Benyus, an innovation consultant and the author of Biomimicry. The tiles are similar yet not identical to one another. This allows for non-directional installation, which is faster and less wasteful as it removes the need to match lots. AS A RESULT: 1.5% waste compared with up to 14% for traditional broadloom carpet.

BOTTOM LINE

In the first three and a half years following the company's mid-course correction, harvesting the so-called 'low-hanging fruit' enabled Interface to reduce total waste by 40% and realize savings of $67 million

Forest floor biomimicry | Interface

A CLOSER LOOK ON

FRONT 2: BENIGM EMISSIONS

Eliminate toxic substances from products, vehicles and facilities.

REMOVAL OF TOXIC SUBSTANCES: TACTILEST

Biomimicry was also a source of inspiration when looking at alternatives for the adhesive glues typically used in carpet installation. In a brainstorming session people were asked, "Is there something we can learn from the gecko? Because surely if the gecko can hold itself on a glass surface using only one toe, we should be able to install carpets without using toxic glues."

FRONT 4: CLOSING THE LOOP

REDESIGN PRODUCT: BIOSFERATM

BiosferaTM is a carpet made of - amongst others - fibER from the company's Re Entry 2.0TM program, as well as fiber derived from salvaged commercial fishnets (see Front 1). The 100% recycled yarn is then combined with GraphlexTM, a backing with high recycled material content, to yield carpet tiles with a total recycled content of 71%.

Over the six years leading up to 2010, the percentage of recycled and bio-based raw material used in Interface's manufacturing processes rose from 4% to 49%.

FRONT 7: REDESIGN COMMERCE

SERVICE DESIGN:

EvergreenTM, TileExchange and TileCareA major avenue in redesigning commerce, and in the concept of a circular economy, is the shift towards industries based on services, rather than products.

One example is EverGreenTM, which was launched in 1996, and reflects Interface's pioneering approach **to sell carpets without selling carpets**. EverGreenTM is a leasing concept where Interface produces, installs, cleans, maintains and replaces the carpeting when needed, and the customers get all the benefits of a carpet, without really owning one. The carpet is owned by Interface, which ensures two main things: proper disposal (i.e. re-claiming the carpet for recycling) and no carpets ending up in landfills. While this concept never developed beyond a small number of prototype con- tracts, its vision helped push Interface deeper into carpet reclamation and other services.

Interface RAISE

THE ENDLESS POSSIBILITIES OF A SUSTAINABLE BUSINESS

CULTURAL IMMERSION PROGRAMME

1.5 day cultural immersion day at our factory at Scherpenzeel, the Netherlands

EMBEDDING SUSTAINABILITY: ONE MIND AT A TIME

The Endless Possibilities series

MISSION ZERO™ – THE POWER OF A CHALLENGING VISION

The Endless Possibilities series

PARTNERSHIP WITH Interface RAISE: A GROWTH OPPORTUNITY FOR SUSTAINABILITY CONSULTANTS

SUSTAINABLE INNOVATION: THINK BIG, BE OPEN TO IDEAS AND EMBRACE SUCCESSFUL FAILURE

Philips

KEY CHARACTERISTICS OF CIRCULAR ECONOMY

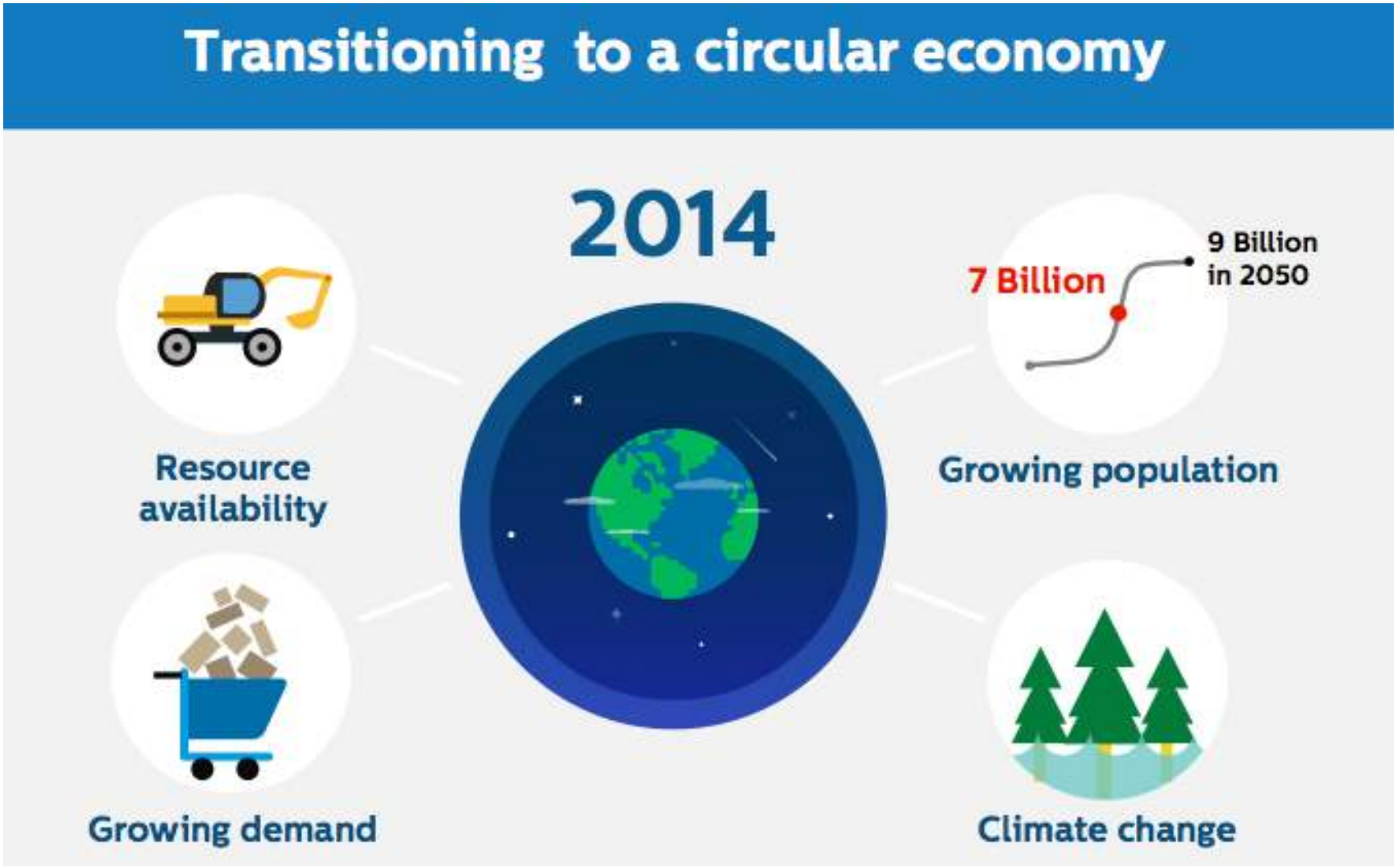
The ecological principals that are addressed in the Circular Economy approach are similar as in methodologies such as cradle to cradle, biomimicry or the natural step, all aiming to use natural resources much smarter and more effective. The big difference of the Circular Economy approach is that the starting point is economic value creation with the improvement of the ecological aspects as a derivative and not the other way around.

CEO, Frans van Houten speaks about sustainability at **Philips**

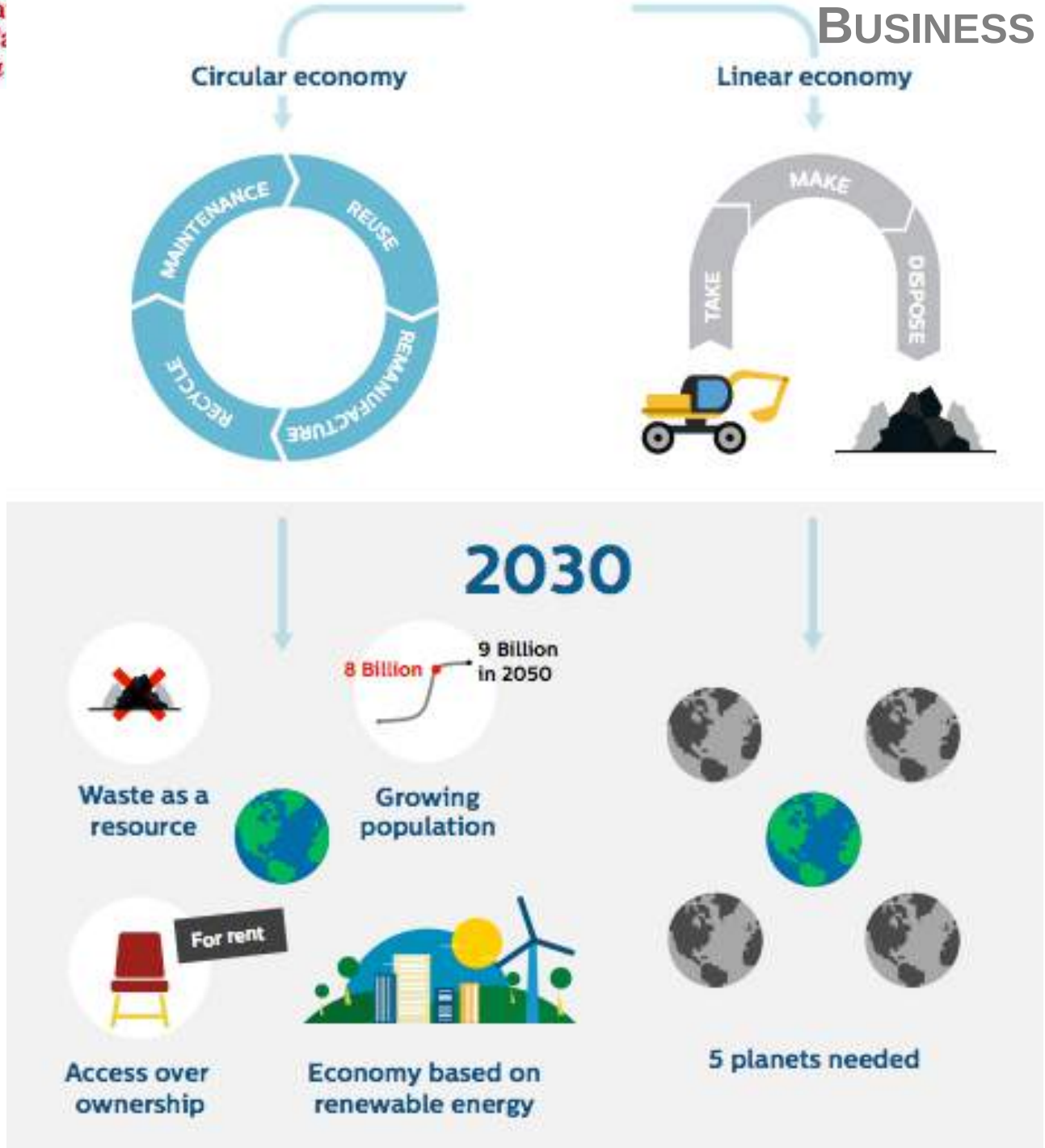
https://www.youtube.com/watch?v=9GSLi_VOTrY#t=76

PHILIPS' APPROACH ON CIRCULAR ECONOMY

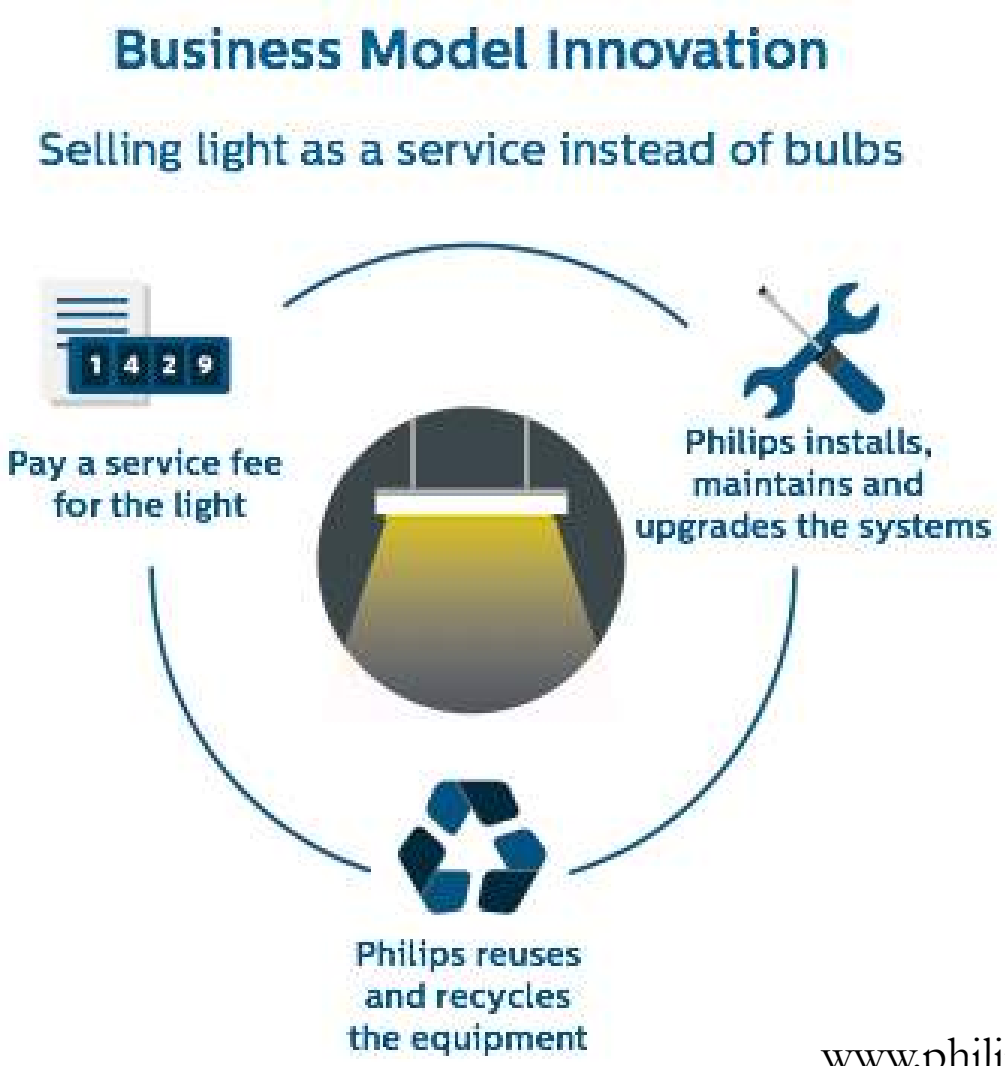
The McKinsey group, assigned by the Ellen McArthur foundation, the leading organization on the concept of Circular Economy, produced two reports on the value creation possibilities of a Circular Economy. For the durable products and solutions industry these reports indicate an economic potential of **EUR 250-500 billion per annum for Europe alone in the next decade**


Transitioning to a circular economy
2014
Resource availability
7 Billion
9 Billion in 2050
Growing population
Growing demand
Climate change

BUSINESS EXAMPLES



EXAMPLES ON HOW PHILIPS IS MAKING THE CIRCULAR ECONOMY HAPPEN



www.philips.com/sustainability

EXAMPLES ON HOW PHILIPS IS MAKING THE CIRCULAR ECONOMY HAPPEN

Material Recovery

Refurbishing old Philips medical equipment instead of building from scratch

www.philips.com/sustainability

EXAMPLES ON HOW PHILIPS IS MAKING THE CIRCULAR ECONOMY HAPPEN

www.philips.com/sustainability