Philosophy & Management, 15/12/2011, Brussels

Biomimicry thru Greenloop story

- 3 steps -

Greenloop

Biomimicry
Greenloop & Biomimicry Europa

Greenloop

BIOMIMICRY EUROPA

Greenloop

Part 1 : *the need to exist! Carbon Management*

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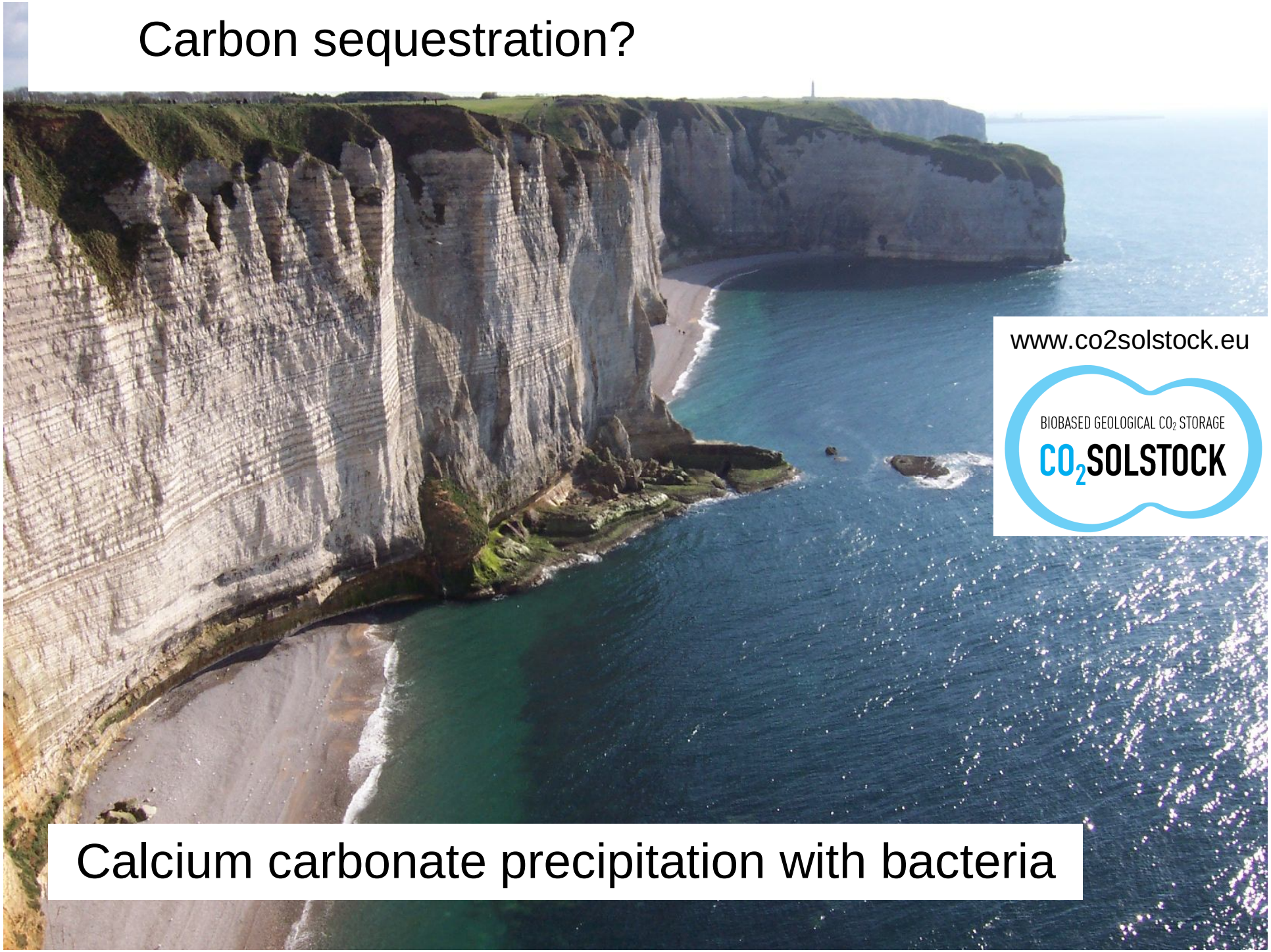
Carbon sequestration?



www.co2solstock.eu

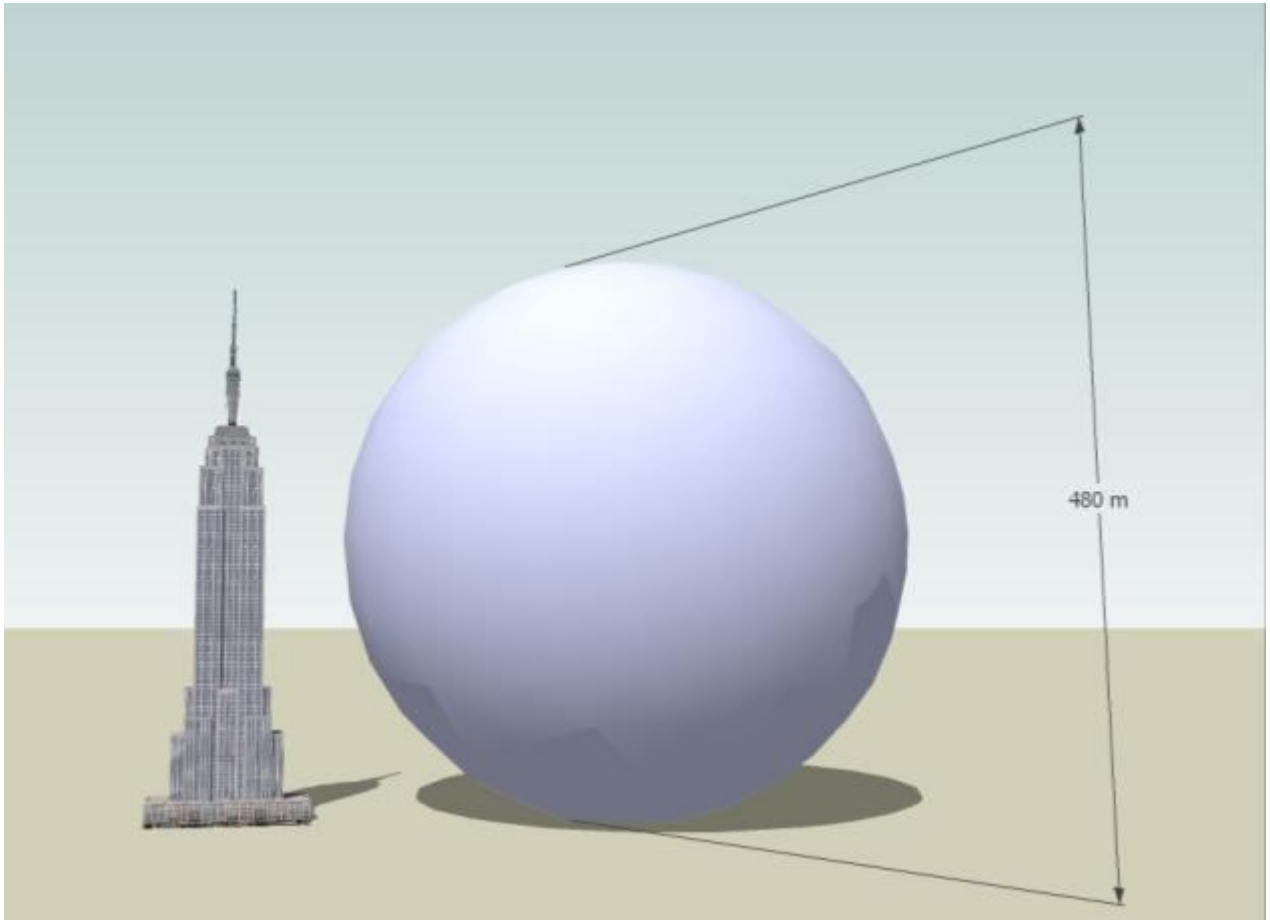
BIOBASED GEOLOGICAL CO_2 STORAGE

CO_2SOLSTOCK

Calcium carbonate precipitation with bacteria

De Post – La Poste

- 109.200 tonnes of CO2 would fill a sphere of 480m across



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Questions at end of step 1

- Only carbon?
- What is SD?
- How to infuse SD at a strategic level?

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Step 2 : *Strategy for Ecological Transition*

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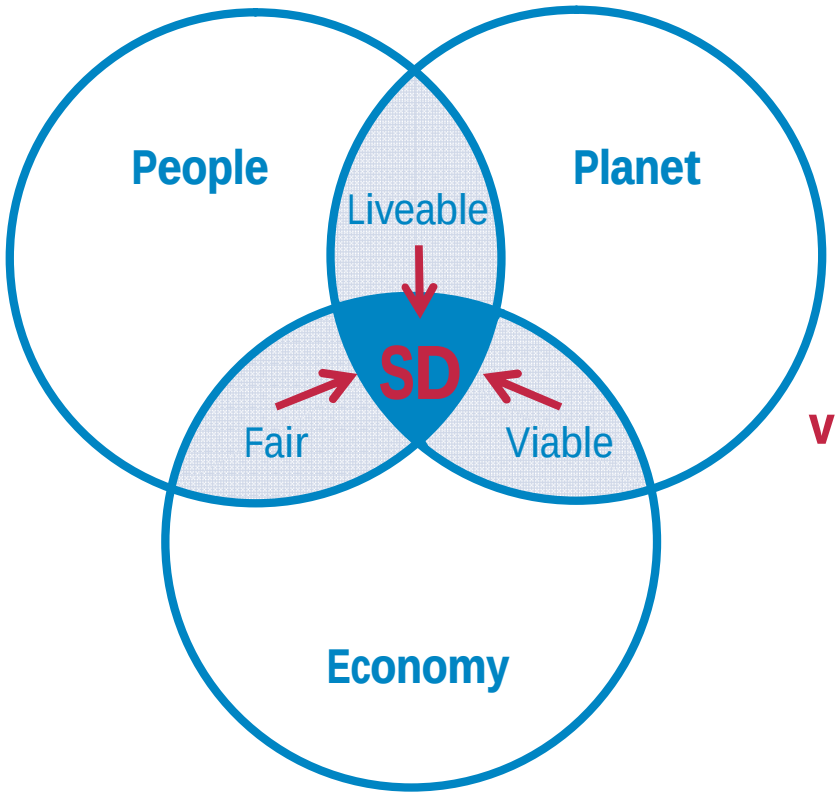
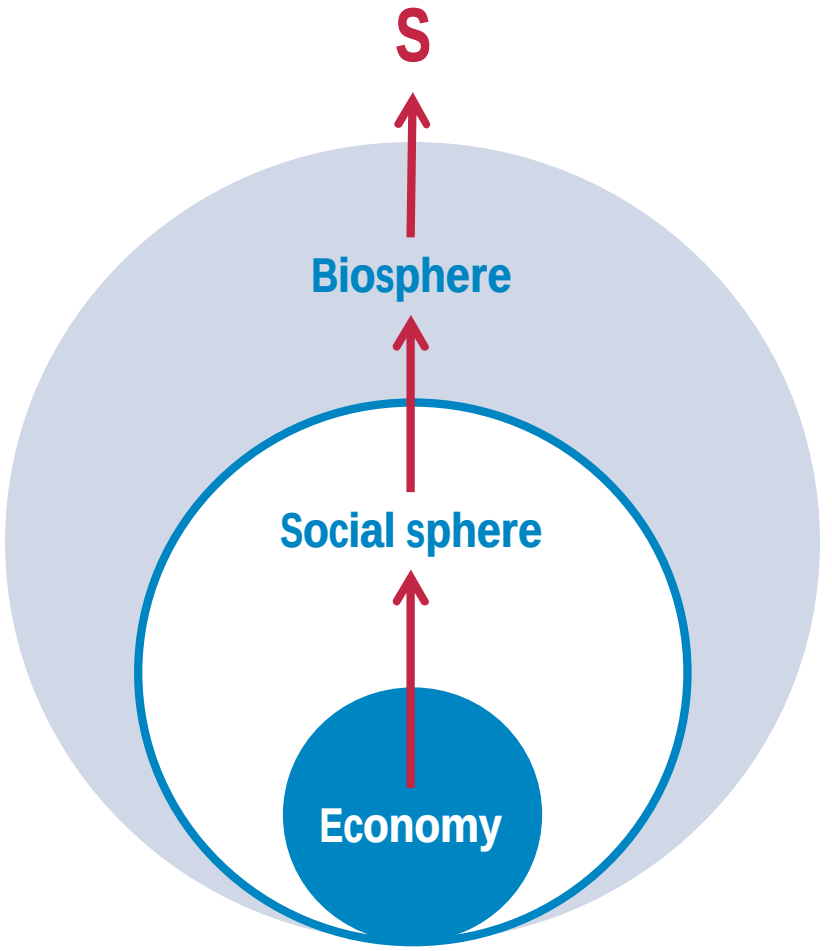
New sustainability mindset emerging



versus



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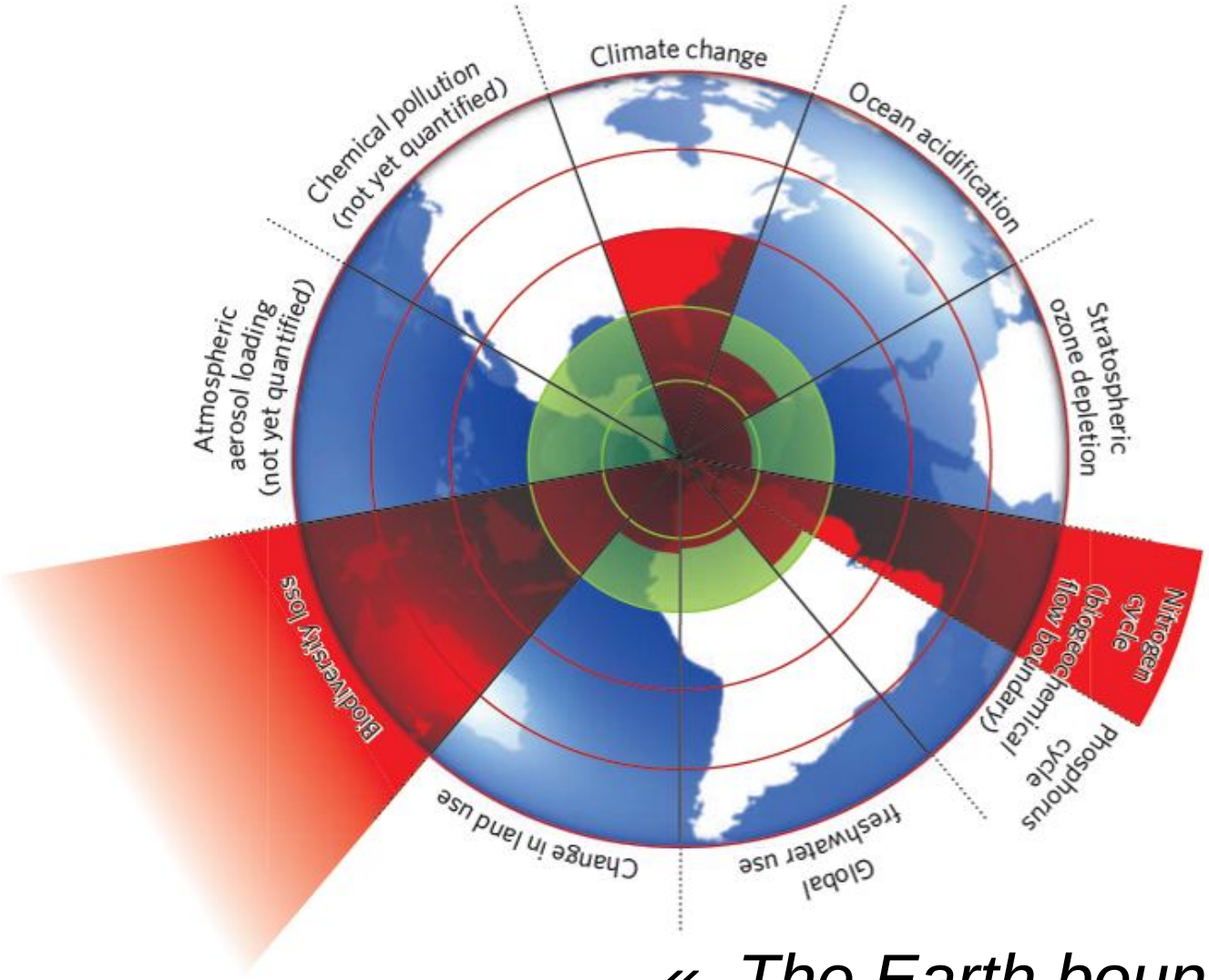
We already overpasted safe limits!



« *The Earth boundaries* »

A safe operating operating space for humanity, Nature, 2009

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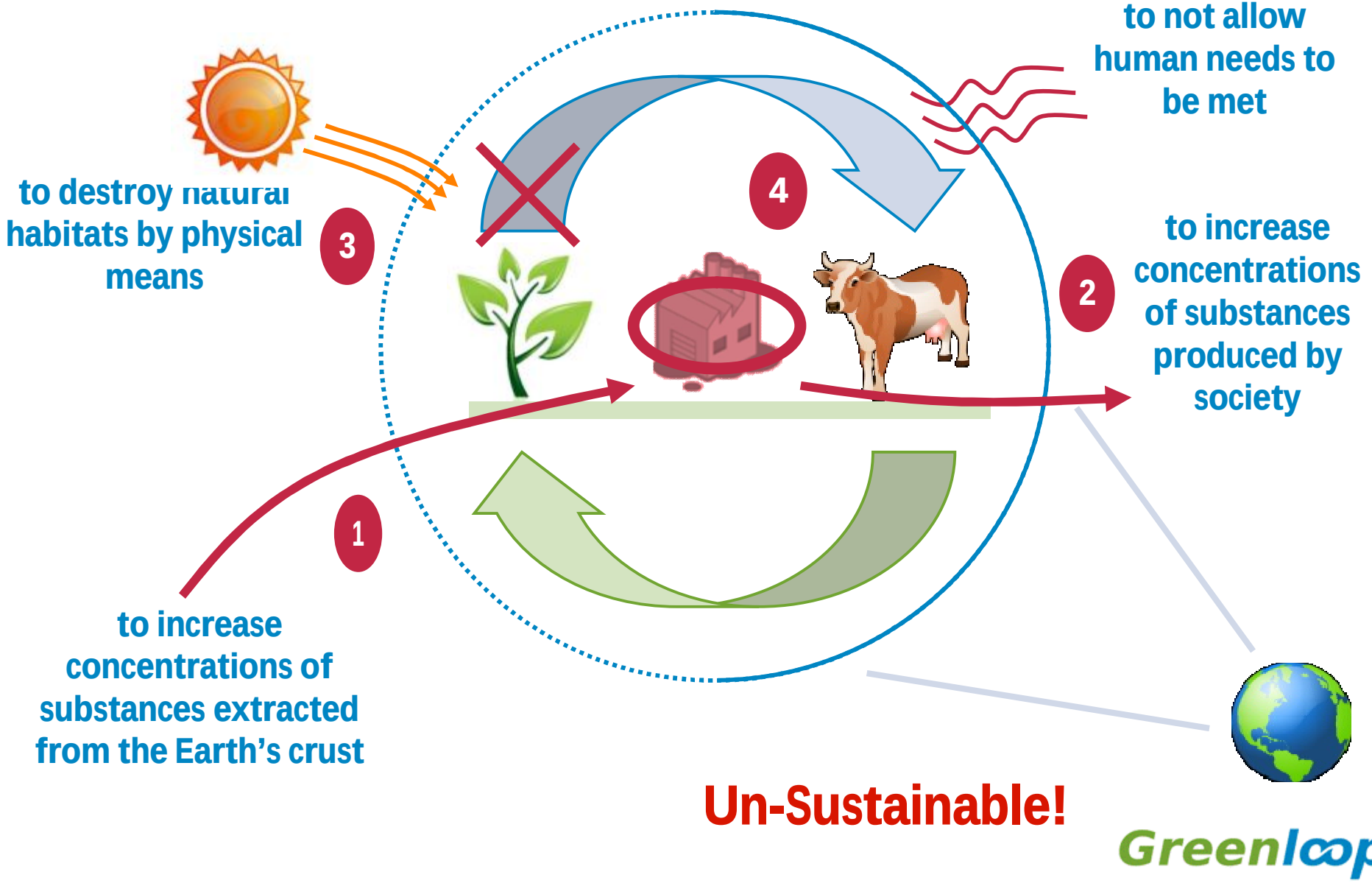
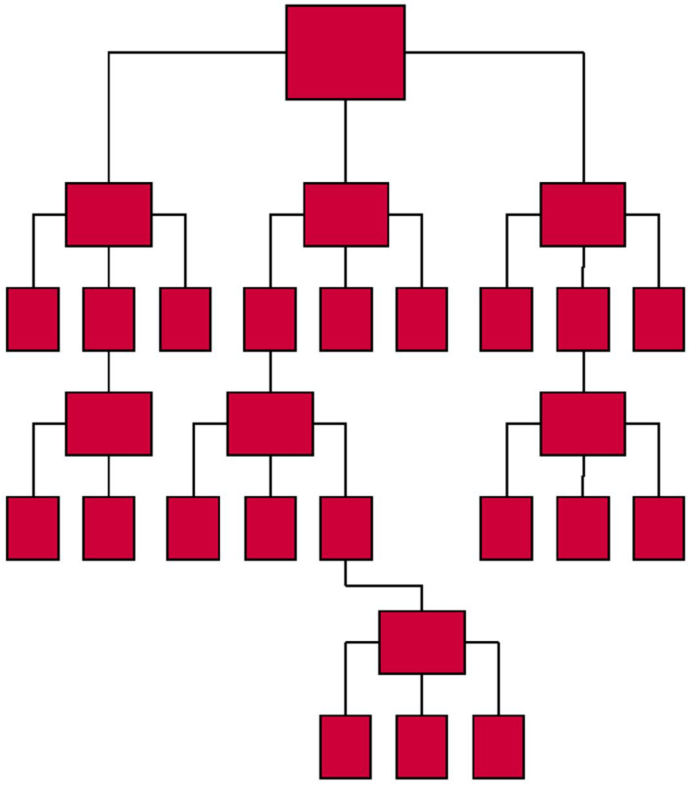
The FOUR SYSTEM CONDITIONS - The Natural Step



Organisations of the past



Adapted to an environment with:

- « Infinite » natural resources
- Weak informations flow

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Which strategy?

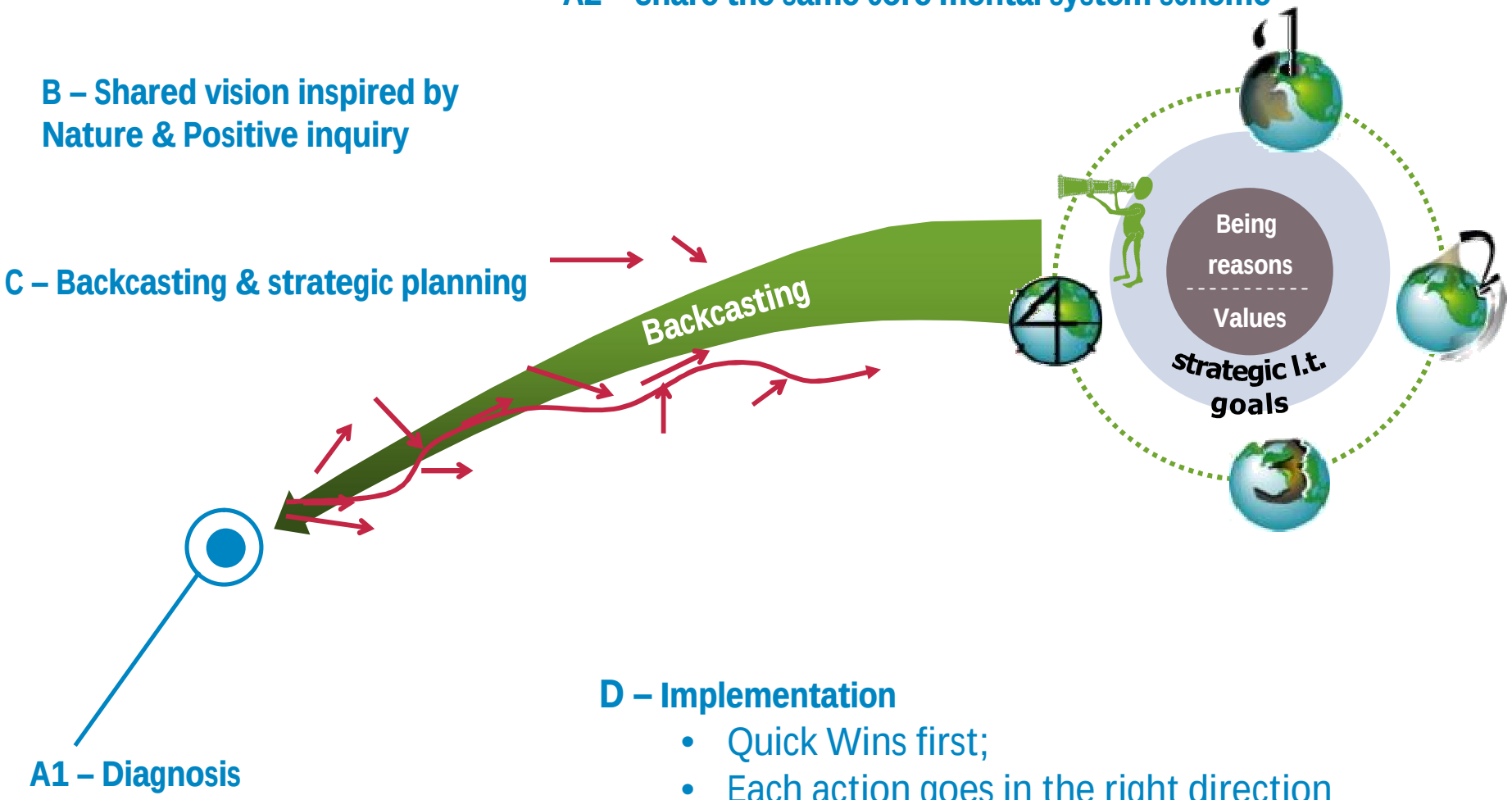
« From eco-efficiency to eco-effectiveness » M. Braungart

The process of crafting a transition strategy

A2 – Share the same core mental system scheme

B – Shared vision inspired by Nature & Positive inquiry

C – Backcasting & strategic planning



A1 – Diagnosis

D – Implementation

- Quick Wins first;
- Each action goes in the right direction
- Create a collaborative and learning environment around sustainability;

Adapted from TNS by Greenloop (2009)

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Questions at end of step 2

- How can Nature help us to craft a vision of ourselves 100% compatible with Biosphere?

- How can nature help us to innovate at a technical and managerial levels.

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Step 3 (work in process) : *Biomimicry, a design tool for technological and managerial innovation*

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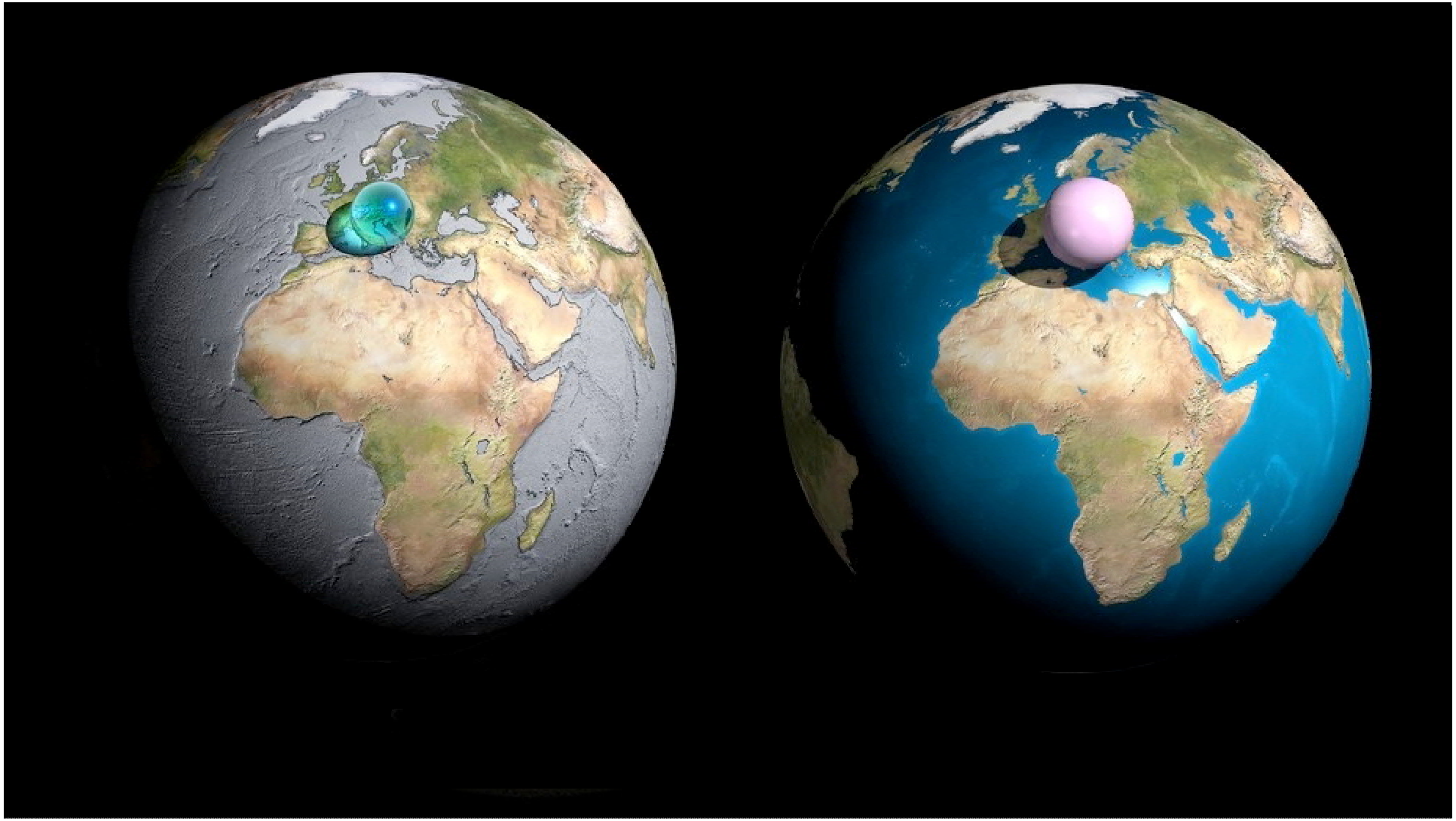
Life operating conditions on Earth is ...



... subject to limits and boundaries

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Earth is ...

a closed system for materials

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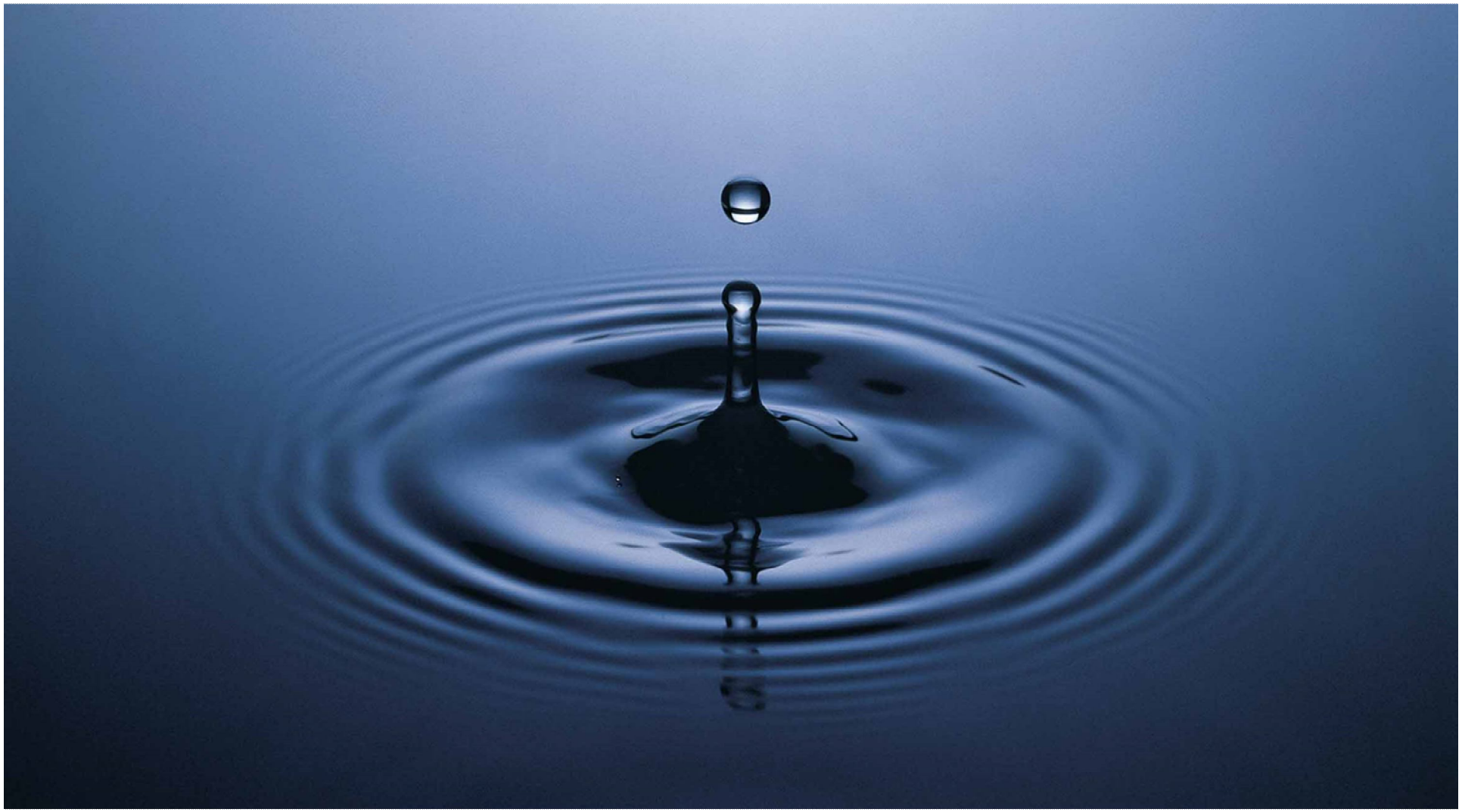
Earth is ...



... water based

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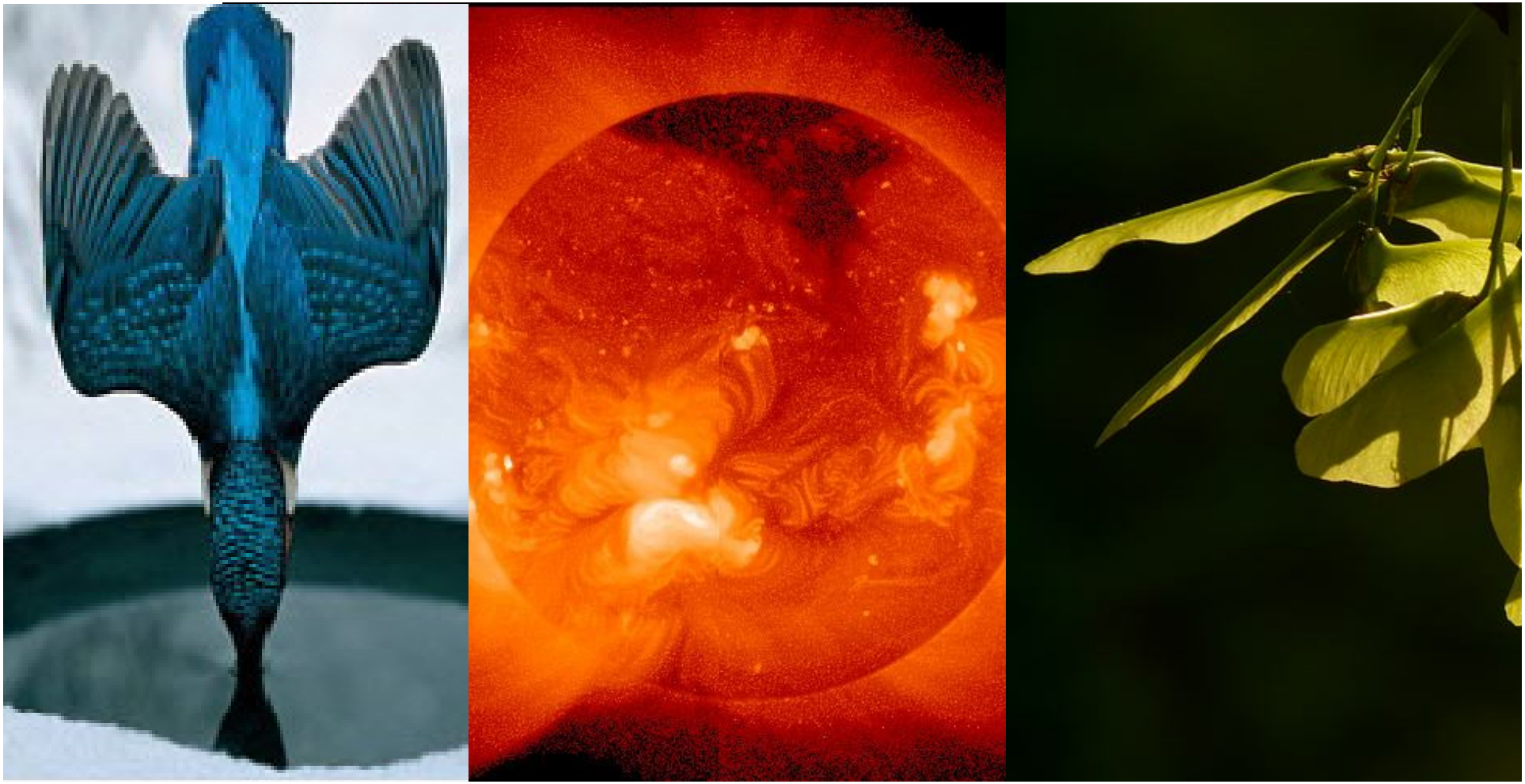
Earth offers



... free energies

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Earth is ...

in a constant state of dynamic non equilibrium

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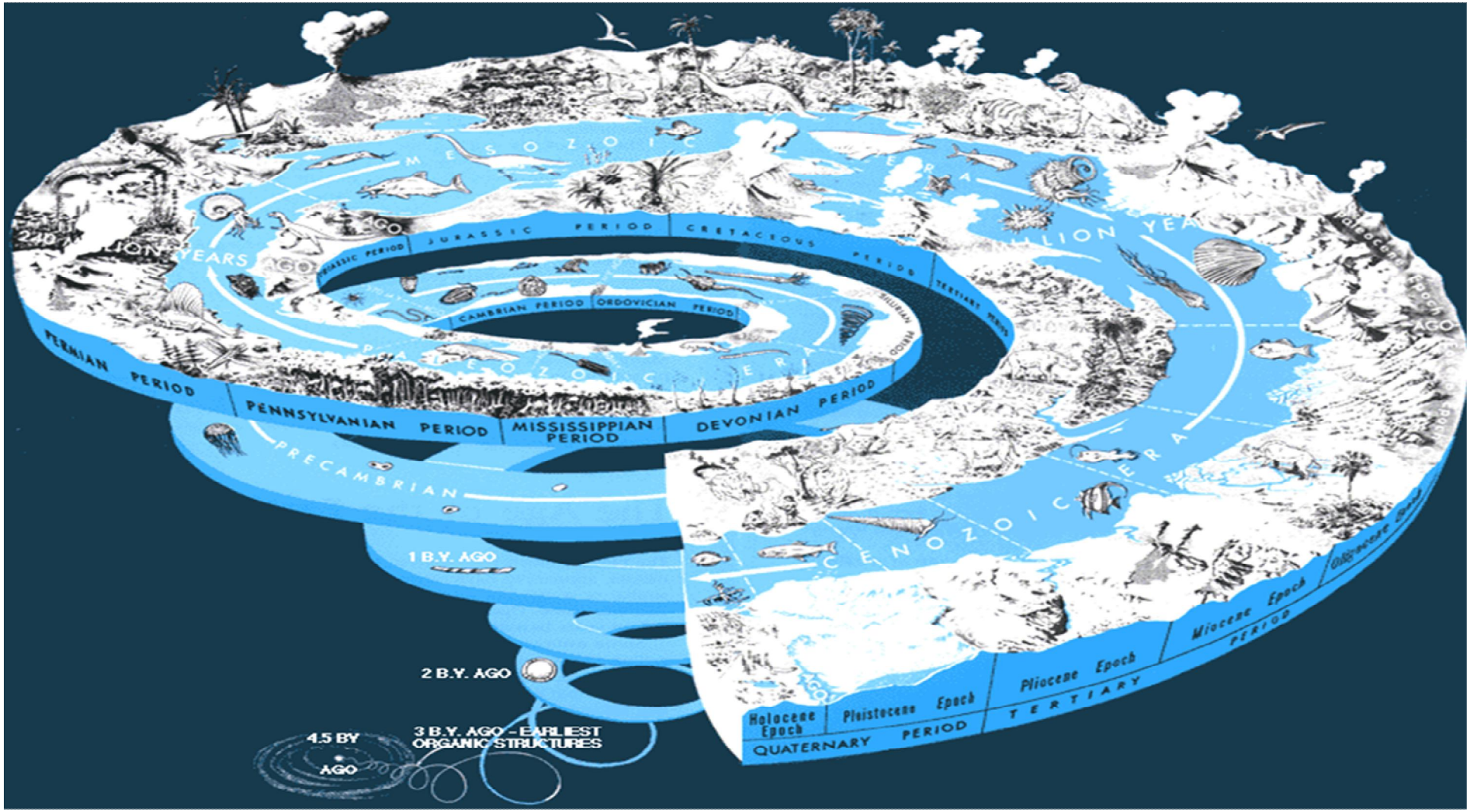
Life on Earth has ...



3.8 billiard years of R&D in sustainability

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Let’s speak business!

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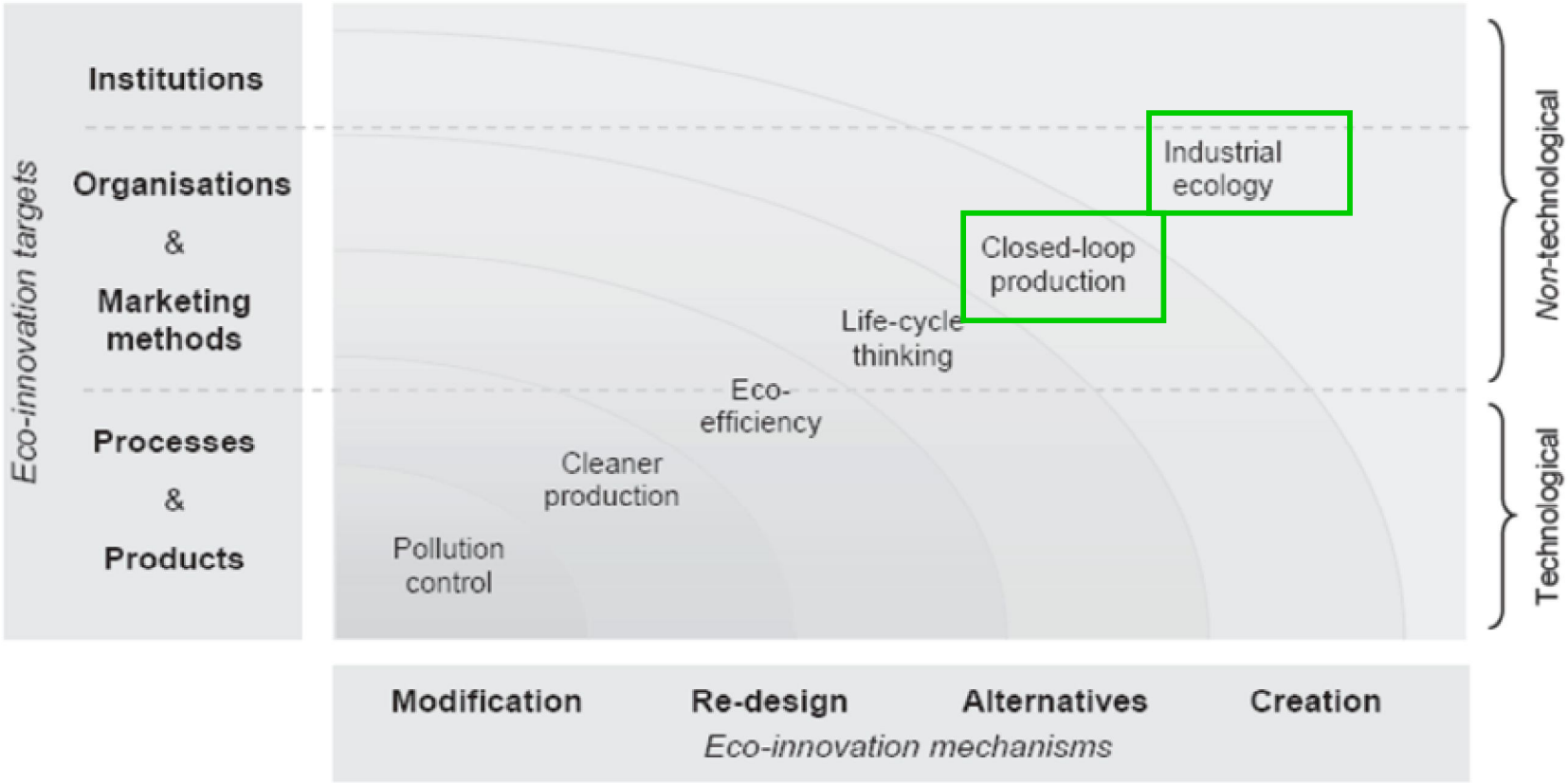
Eco-innovation in industry, OCDE, 2010

Figure 1.8. Conceptual relations between sustainable manufacturing and eco-innovation



From « Eco-innovation in industry », Chapter 1: Tomoo Machiba and Karsten Olsen (OCDE, 2010)

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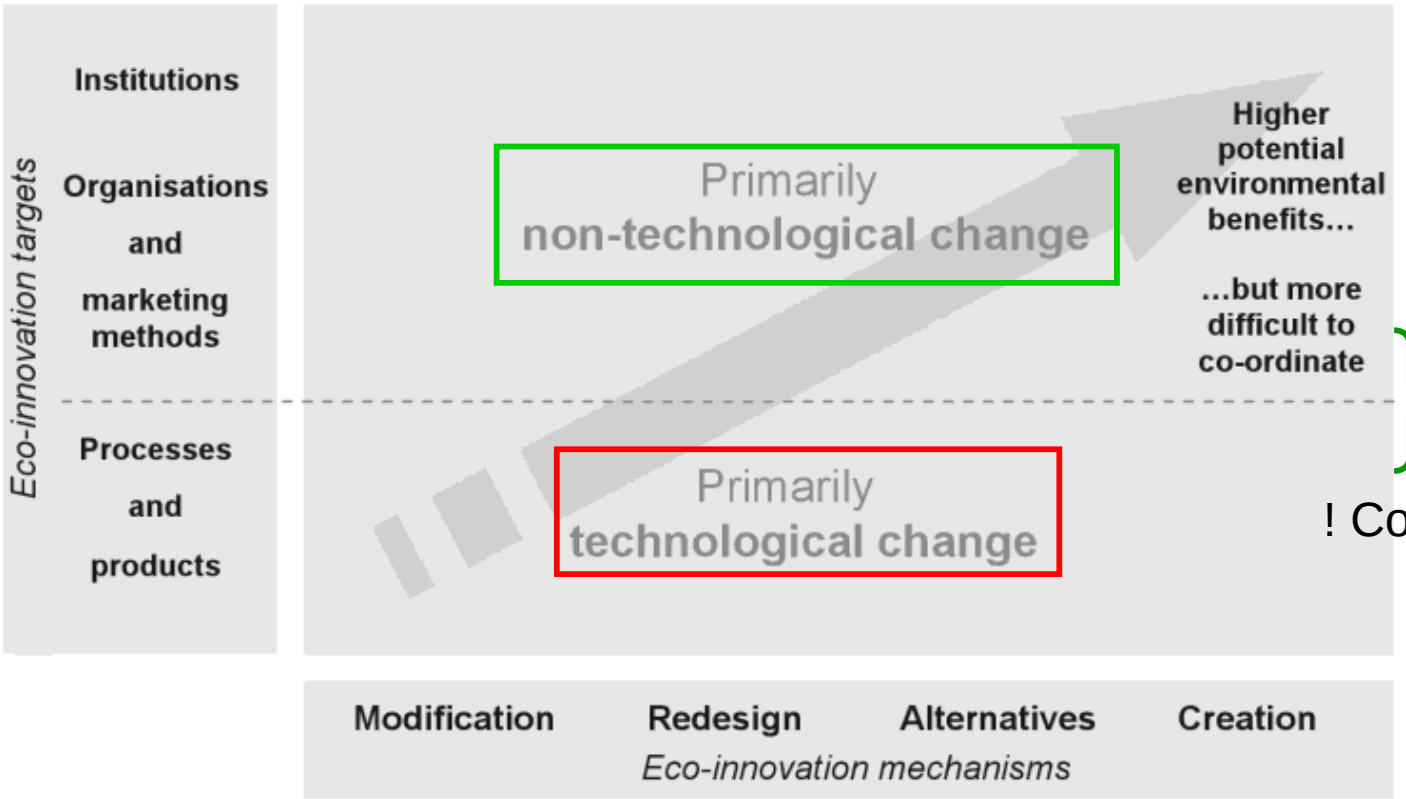
Eco-innovation in industry, OCDE, 2010



! Collaboration !

From « Eco-innovation in industry », Chapter 1: Tomoo Machiba and Karsten Olsen (OCDE, 2010)

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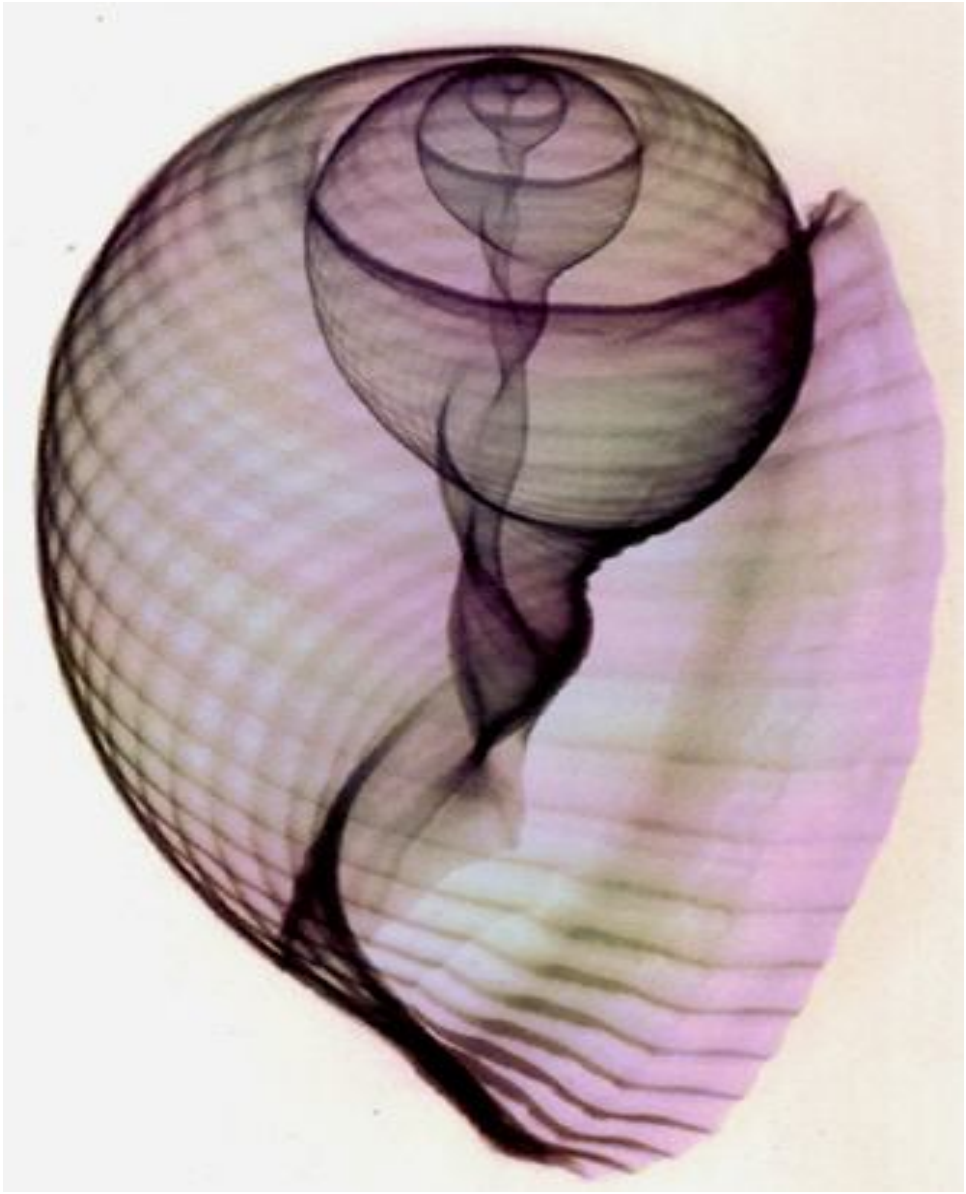
(Some) Nature guiding principles for Technological innovations



Bottom – up

Simple building blocks

C, H, O, N, P, S ~ 96%

Auto-assemble >> disassemble (C2C)

Free energy (sun & gravity)

Solvant = water

Optimize rather than Maximize

Few themes >> diversity

Form fit to function

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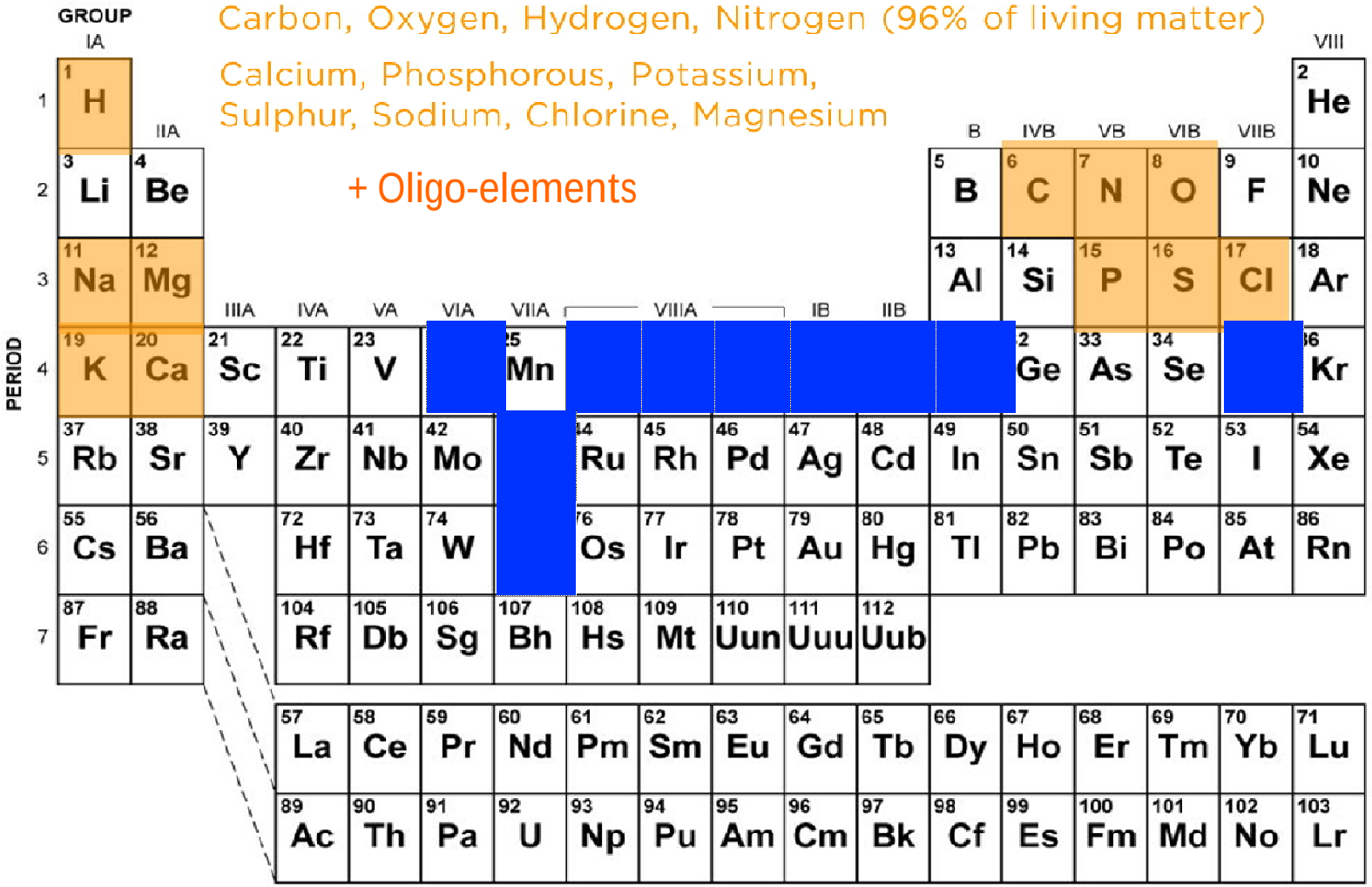
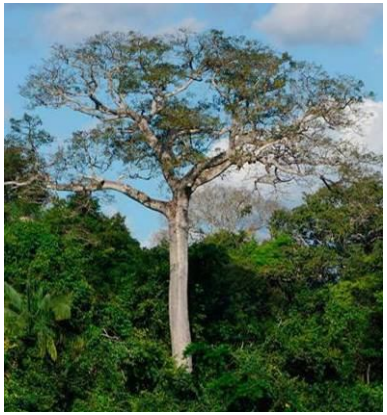
C, H, O, N, P, S ~ 96%


Carbon, Oxygen, Hydrogen, Nitrogen (96% of living matter)
Calcium, Phosphorous, Potassium,
Sulphur, Sodium, Chlorine, Magnesium
+ Oligo-elements
GROUP
PERIOD
IA
IIA
IIIA
IVA
VA
VIA
VIIA
VIIIA
IB
IIB
B
IVB
VB
VIB
VIIB
VIII
1 H
2 He
3 Li
4 Be
5 B
6 C
7 N
8 O
9 F
10 Ne
11 Na
12 Mg
13 Al
14 Si
15 P
16 S
17 Cl
18 Ar
19 K
20 Ca
21 Sc
22 Ti
23 V
25 Mn
32 Ge
33 As
34 Se
36 Kr
37 Rb
38 Sr
39 Y
40 Zr
41 Nb
42 Mo
44 Ru
45 Rh
46 Pd
47 Ag
48 Cd
49 In
50 Sn
51 Sb
52 Te
53 I
54 Xe
55 Cs
56 Ba
72 Hf
73 Ta
74 W
76 Os
77 Ir
78 Pt
79 Au
80 Hg
81 Tl
82 Pb
83 Bi
84 Po
85 At
86 Rn
87 Fr
88 Ra
104 Rf
105 Db
106 Sg
107 Bh
108 Hs
109 Mt
110 Uun
111 Uuu
112 Uub
57 La
58 Ce
59 Pr
60 Nd
61 Pm
62 Sm
63 Eu
64 Gd
65 Tb
66 Dy
67 Ho
68 Er
69 Tm
70 Yb
71 Lu
89 Ac
90 Th
91 Pa
92 U
93 Np
94 Pu
95 Am
96 Cm
97 Bk
98 Cf
99 Es
100 Fm
101 Md
102 No
103 Lr

Biodiversity as a Technological library

Carbon sequestration



Photosynthesis

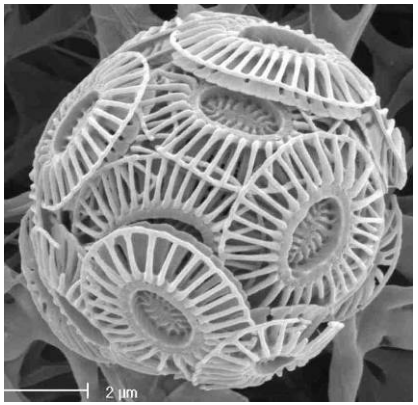
Limestone

Mollusks

Bacteria…

BIOBASED GEOLOGICAL CO_2 STORAGE
CO_2SOLSTOCK

Plankton



…with trees & fungi

…alone

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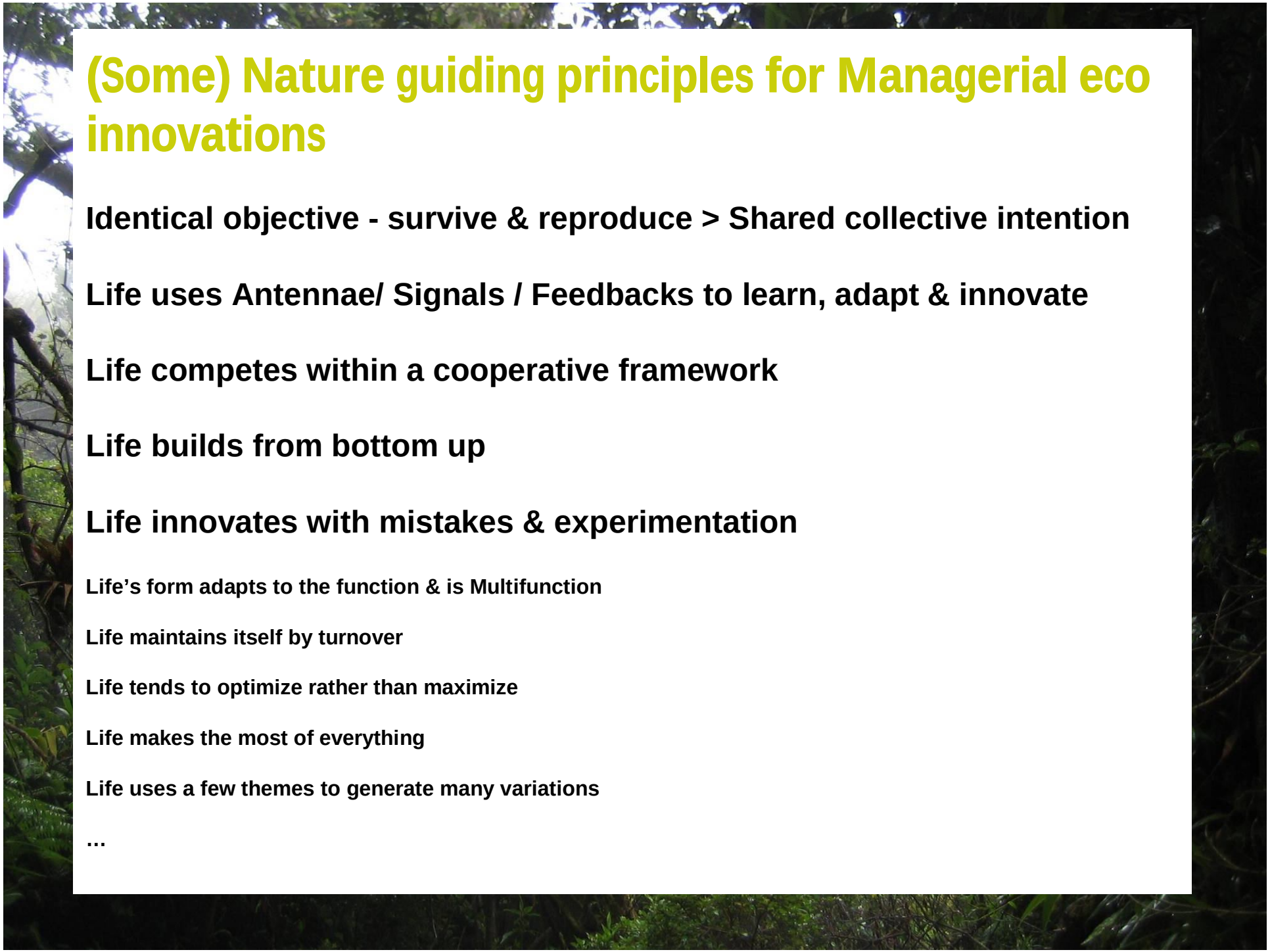

(Some) Nature guiding principles for Managerial eco innovations

Identical objective - survive & reproduce > Shared collective intention

Life uses Antennae/ Signals / Feedbacks to learn, adapt & innovate

Life competes within a cooperative framework

Life builds from bottom up

Life innovates with mistakes & experimentation

Life's form adapts to the function & is Multifunction

Life maintains itself by turnover

Life tends to optimize rather than maximize

Life makes the most of everything

Life uses a few themes to generate many variations

…


Collective intention…
…emerges from common and individual goal…


… Stay alive and reproduce as a panarchy of common goal

Sustainability @ CERIA Schools

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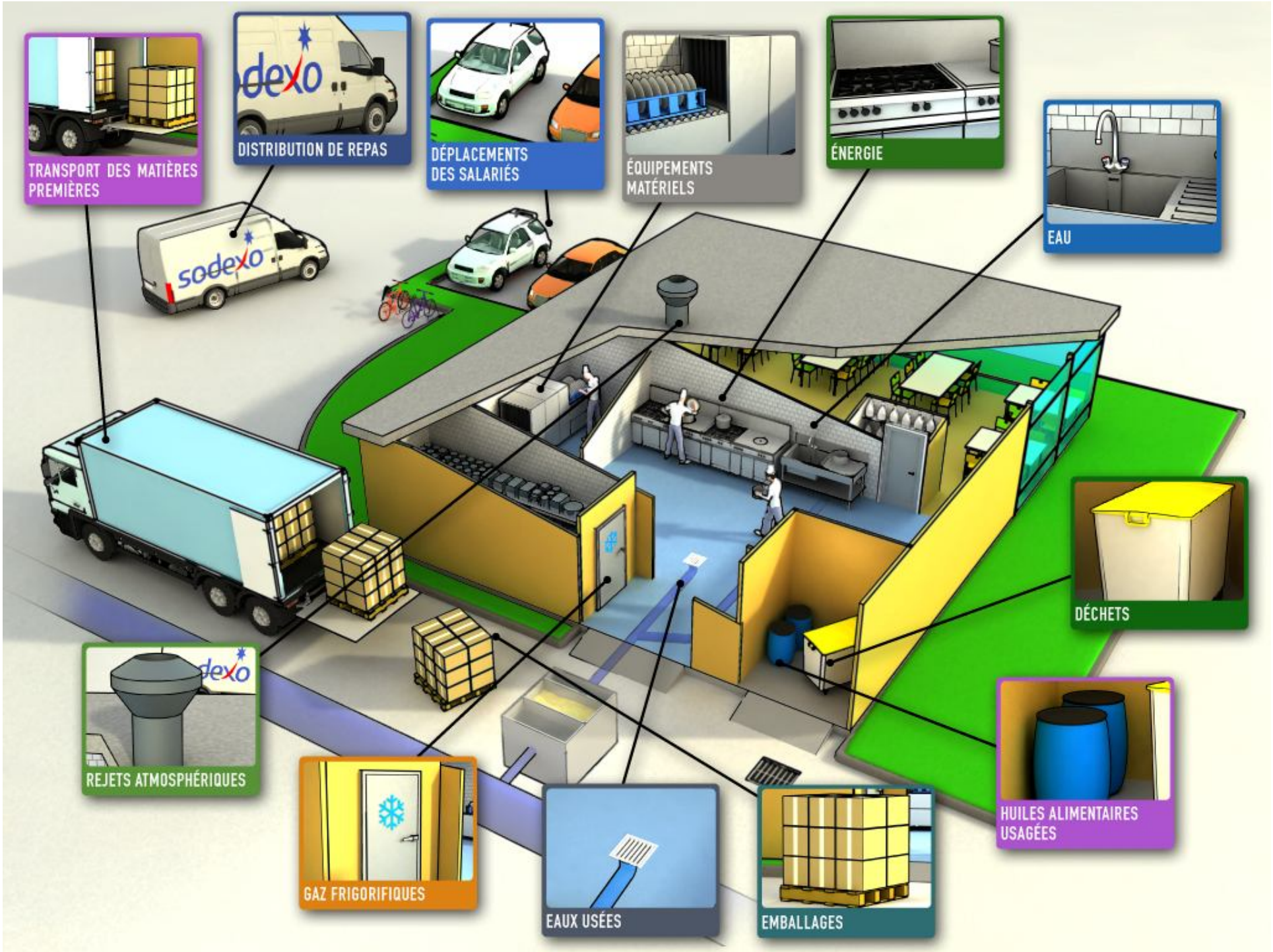
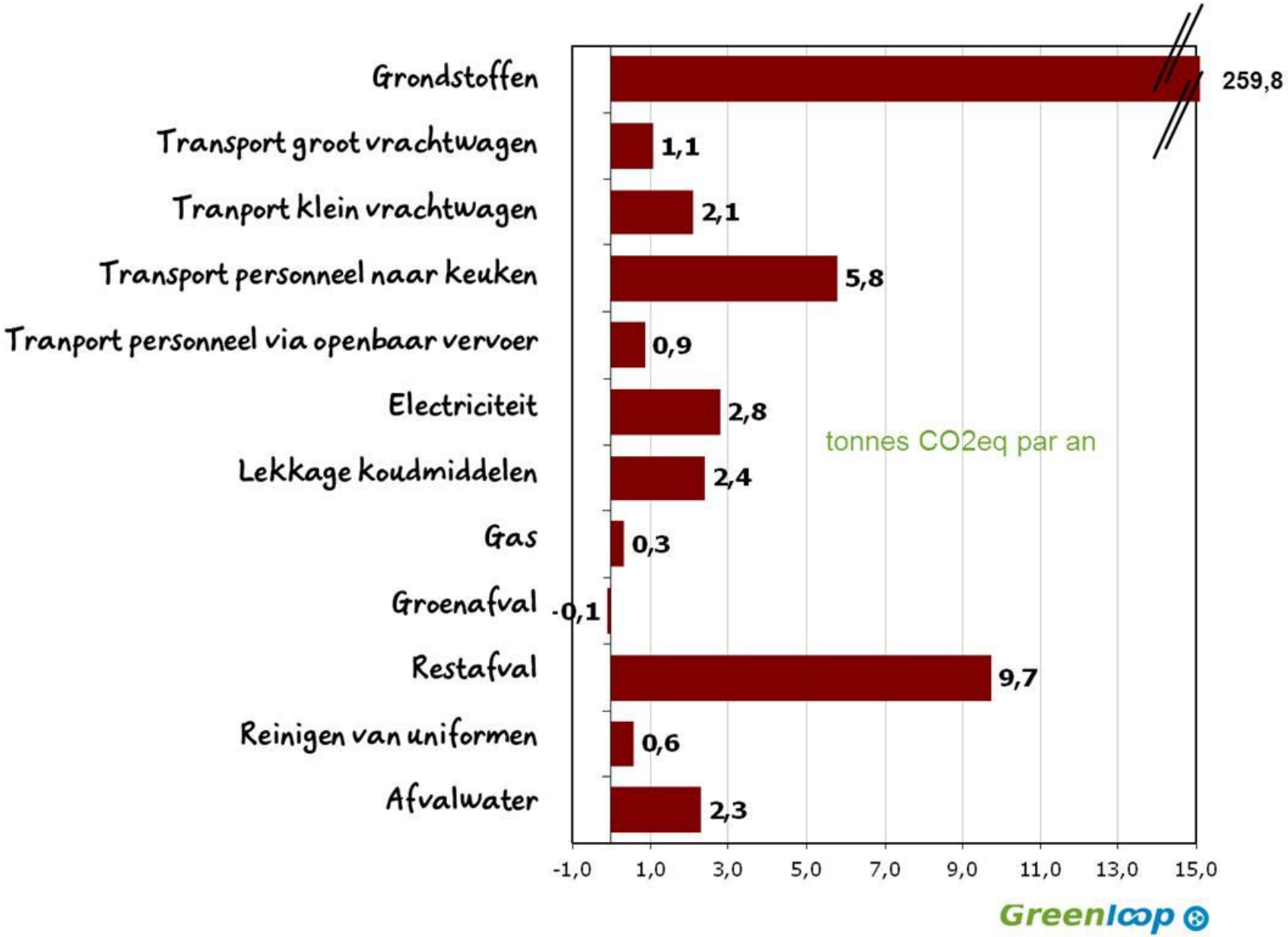
Learn continuously thanks to antennae,
signals and feedback


TRANSPORT DES MATIÈRES PREMIÈRES
DISTRIBUTION DE REPAS
DÉPLACEMENTS DES SALARIÉS
ÉQUIPEMENTS MATÉRIELS
ÉNERGIE
EAU
DÉCHETS
REJETS ATMOSPHÉRIQUES
GAZ FRIGORIFIQUES
EAUX USÉES
EMBALLAGES
HUILES ALIMENTAIRES USAGÉES

Carbon footprint of a Sodexo Site



Transition strategy: create an creative tension with a shared vision and a « commitment to the truth »

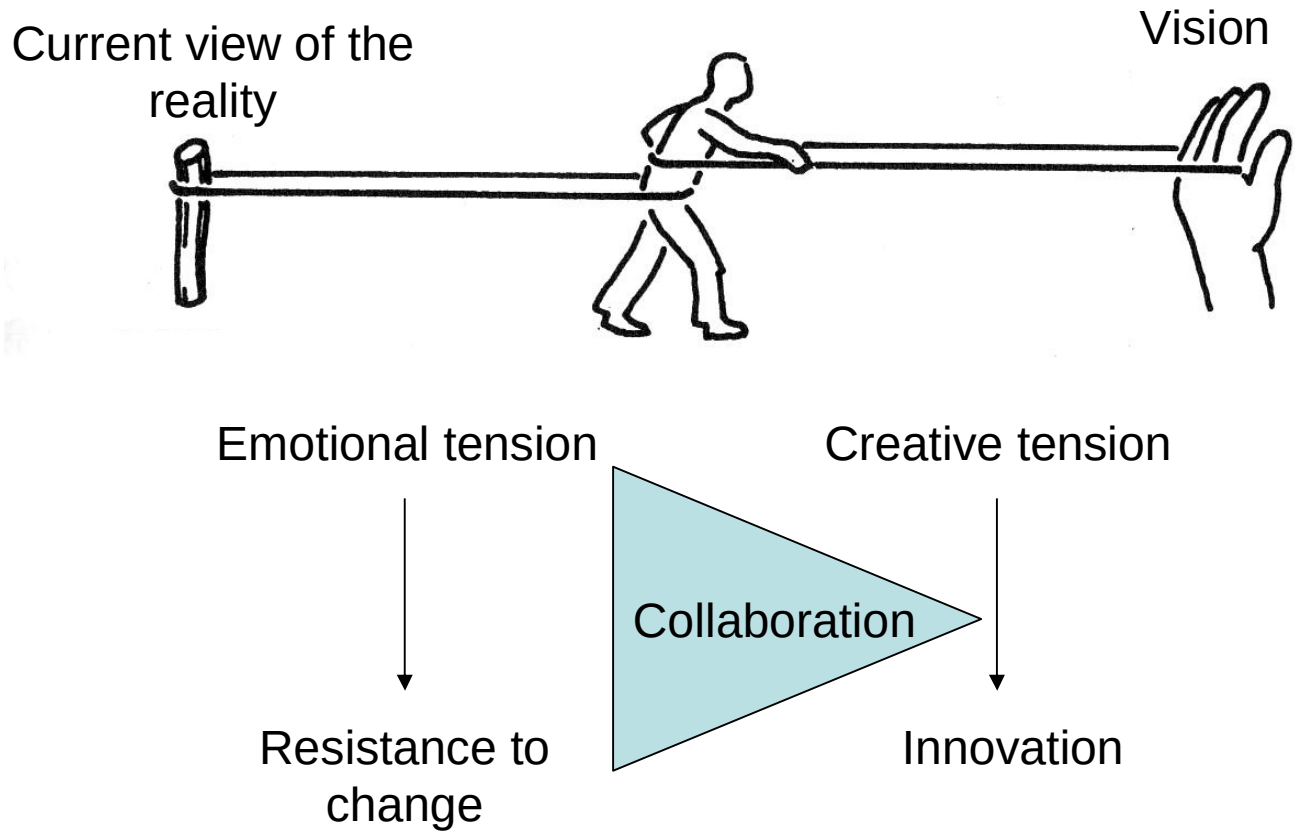


Illustration from « The Fifth Discipline », P. Senge

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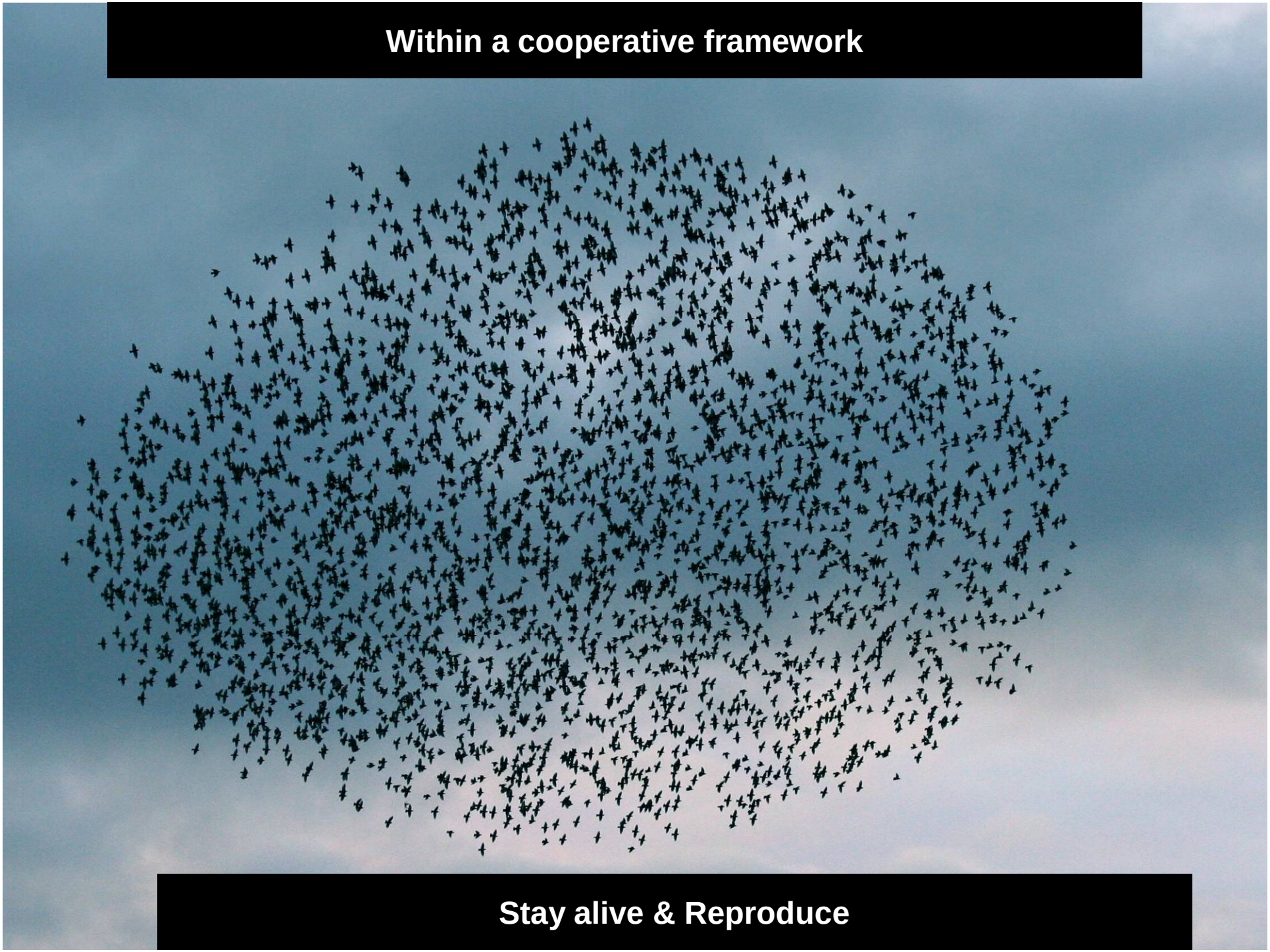
Nature competes

Within a cooperative framework



Stay alive & Reproduce

A DM campaign in 6 steps

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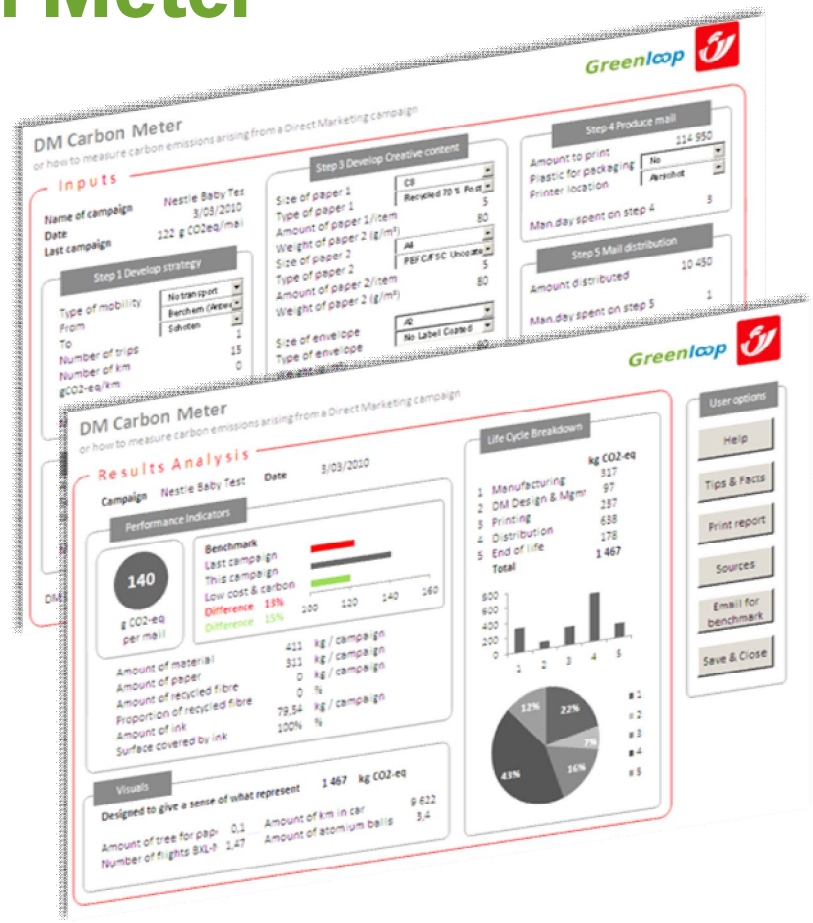
DM Carbon Meter

- Purpose
  - Calculate carbon (CO2-equivalent) emissions produced for a standard mailing
  - Propose low-carbon alternatives
  - Provide easy comparative benchmarks
  - Allow continuous improvement



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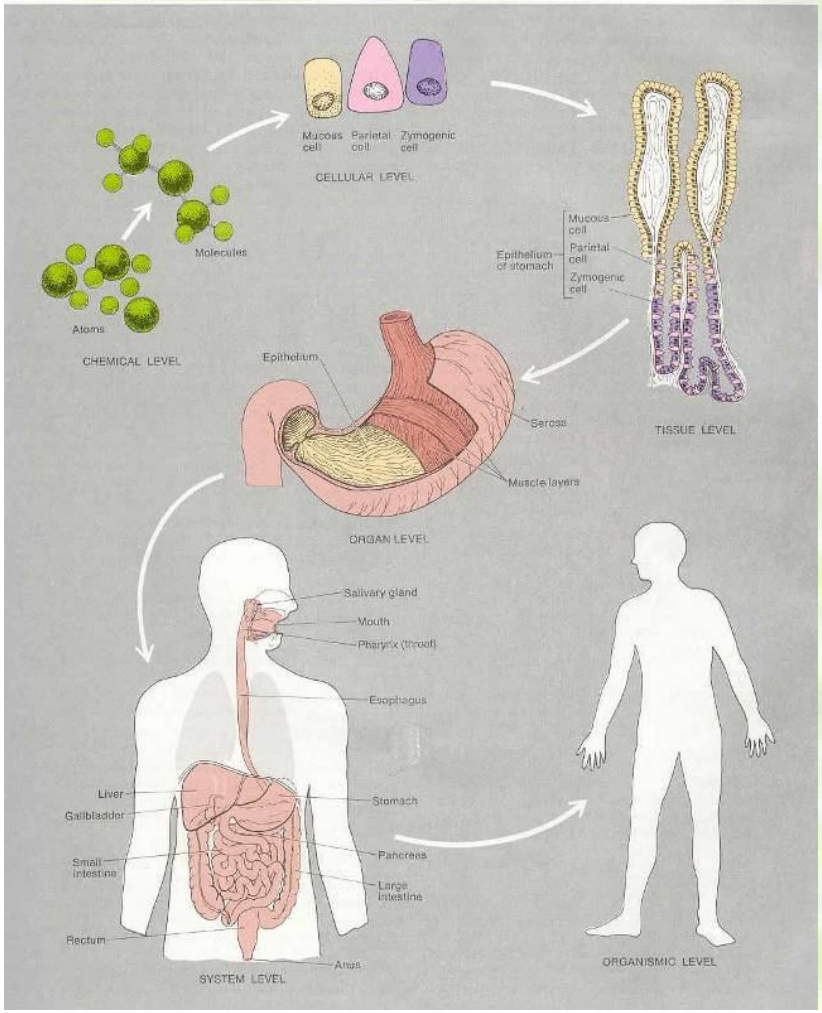
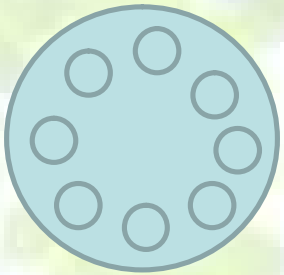
Nested structure from the bottom-up

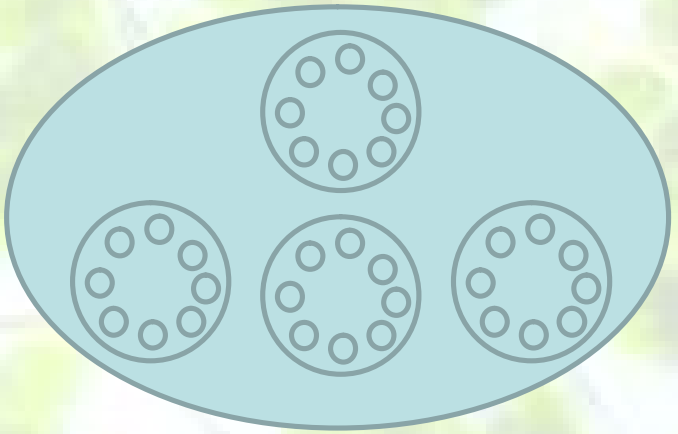
learning individuals



Collaboration principles



to learning teams

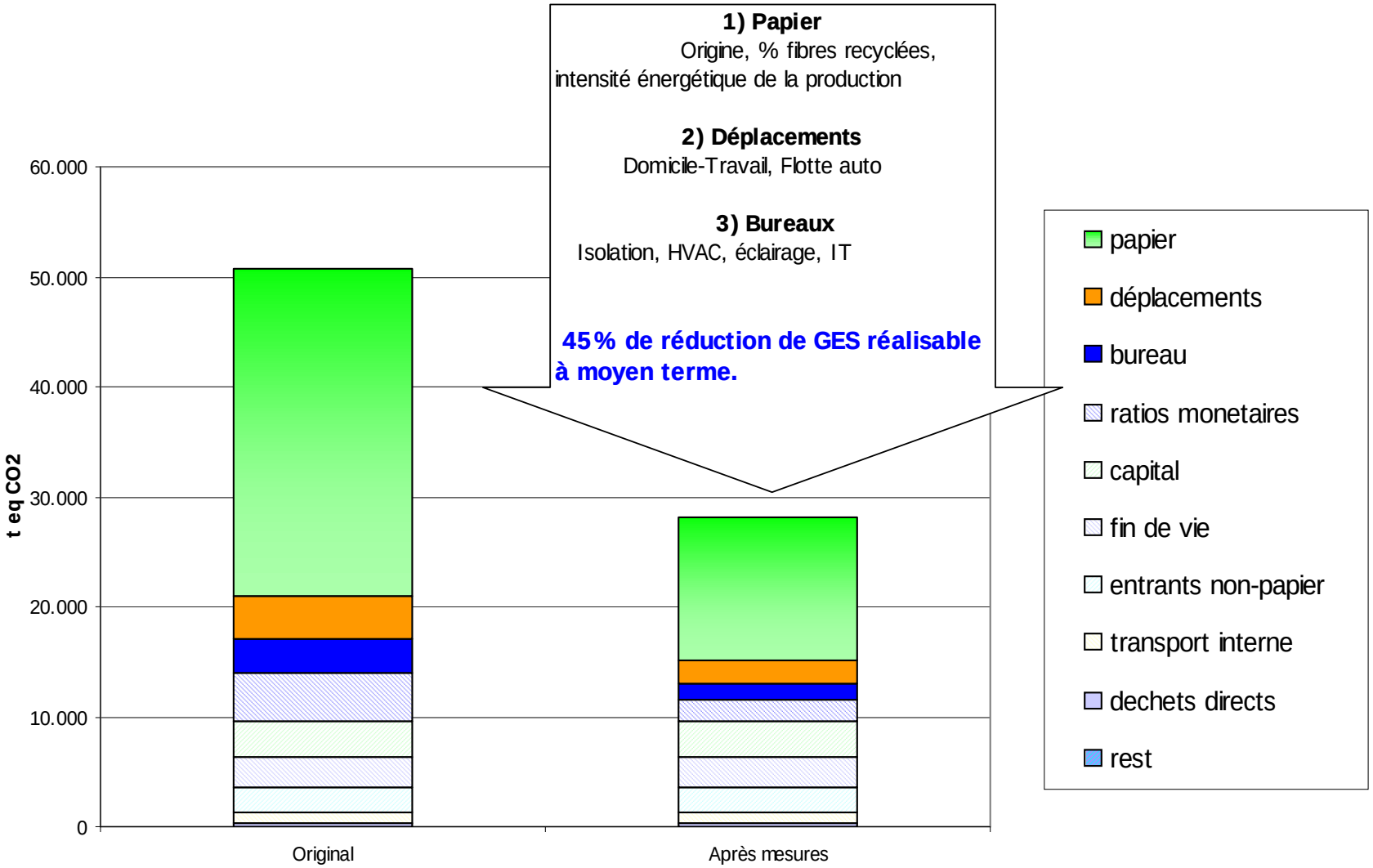


to learning organisation


Life makes the most of everything
Life innovates with mistakes & experimentation

Collaboration along the value chain

GHG reduction potential at Group La Voix (Fr)



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