Circular IT Group & Aliter Networks
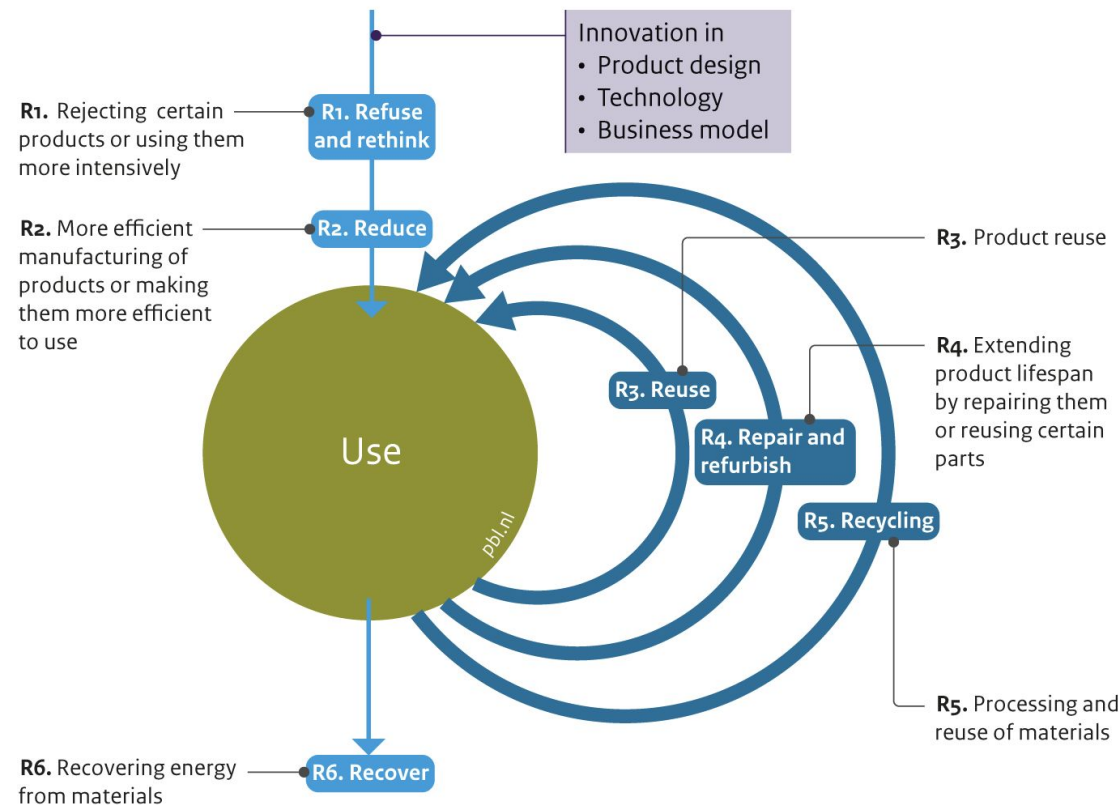
Accelerate to a circular economy

Agenda:

👉 **Circular Economy**

👉 **Circular IT**

👉 **Circular IT Group**

Figure 1
R ladder with circularity strategies

R1. Rejecting certain products or using them more intensively

R2. More efficient manufacturing of products or making them more efficient to use

Innovation in
• Product design
• Technology
• Business model

R1. Refuse and rethink

R2. Reduce

Use

R3. Reuse

R4. Repair and refurbish

R5. Recycling

R6. Recover

R3. Product reuse

R4. Extending product lifespan by repairing them or reusing certain parts

R5. Processing and reuse of materials
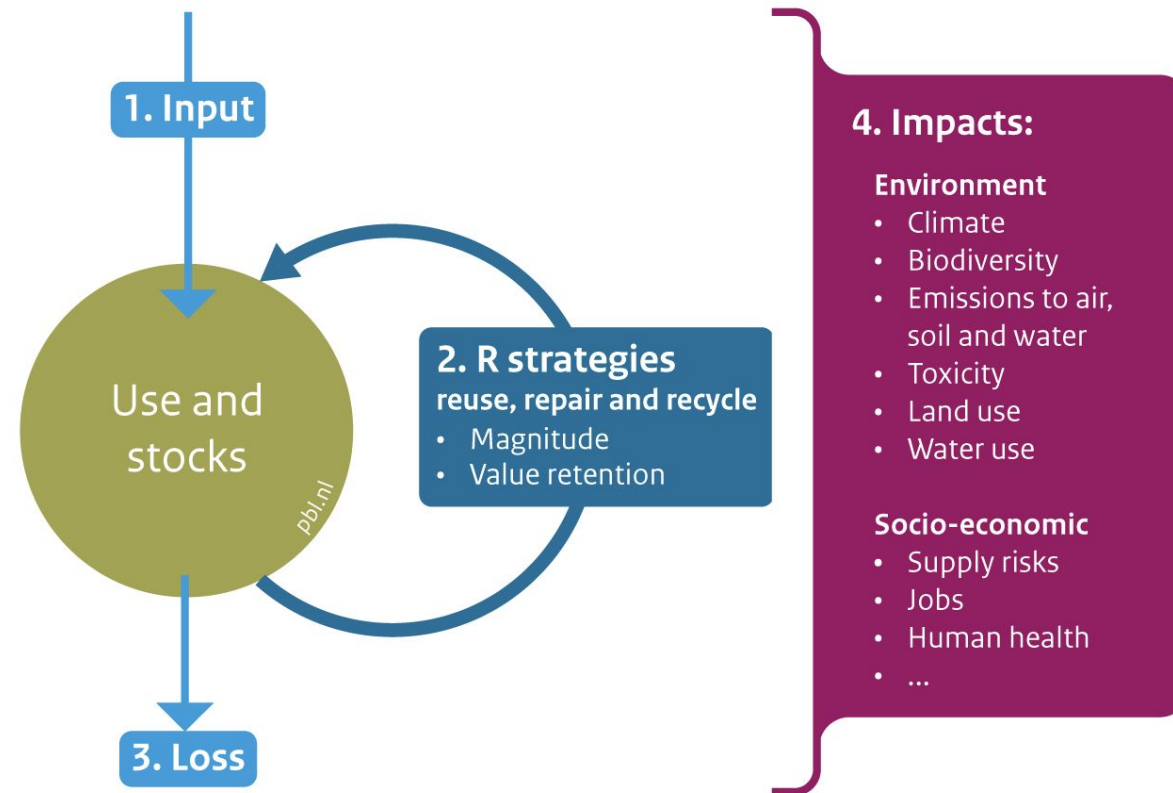
R6. Recovering energy from materials

Source: PBL

The Dutch government intends to realise a **fully circular economy in the Netherlands by 2050** and, as an intermediate goal, to **halve the use of raw materials by 2030**.

Figure 1.1
Framework for targets and indicators of circular economy monitoring

1. Input

Use and stocks

pbl.nl

2. R strategies
reuse, repair and recycle
• Magnitude
• Value retention

3. Loss

4. Impacts:

Environment
• Climate
• Biodiversity
• Emissions to air, soil and water
• Toxicity
• Land use
• Water use

Socio-economic
• Supply risks
• Jobs
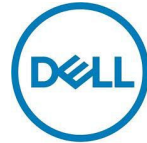• Human health
• …

Source: PBL

Goal of The Circular Economy :

👉 Reduction of (Critical) Raw Material consumption;

👉 Mitigation of the negative environmental impact;
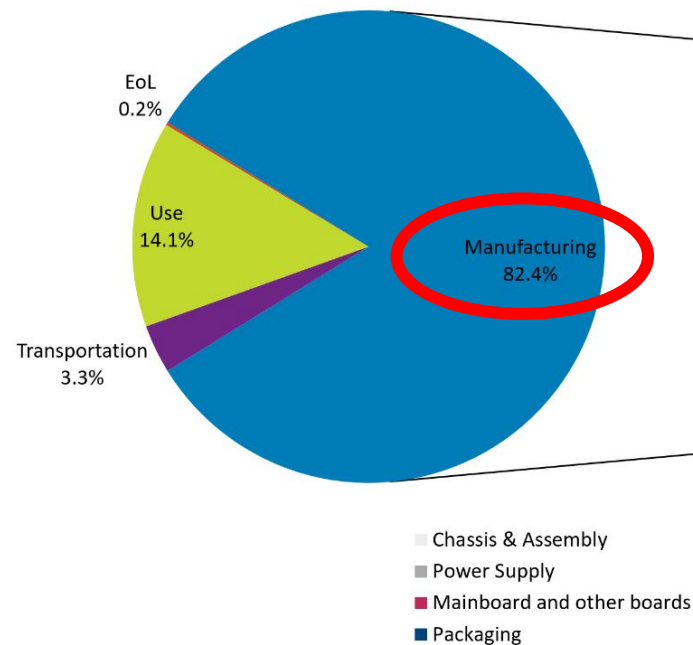
👉 Value retention.
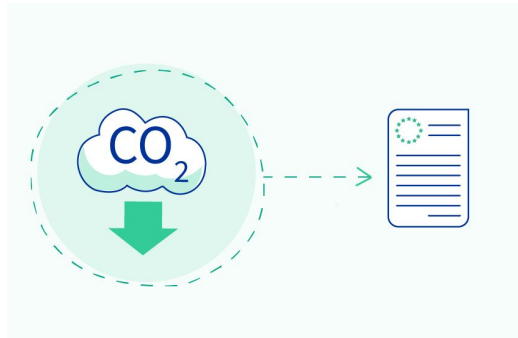
Fit for 55: The European climate law regulation turns the political ambition of reaching **climate neutrality by 2050** into a legal obligation for the EU. By adopting it, the EU and its member states committed to cutting net greenhouse gas emissions in the EU **by at least 55% by 2030**, compared to 1990 levels.

IT **Circular IT GROUP**

1) Dell Latitude 7290
carbon footprint
209 KG CO_2

82,4% Manufacturing

EoL 0.2%

Use 14.1%

Transportation 3.3%

Manufacturing 82.4%

8.1% 2.5%

23.9%

3.3%
0.2%

14.3%

30.1%

- Chassis & Assembly
- Power Supply
- Mainboard and other boards
- Packaging
- Solid State Drive
- Battery
- Display

2) 16-inch MacBook Pro
life cycle carbon emissions
349 kg carbon emissions

66% Production
6% Transport
27% Use
<1% End-of-life processing

3) HP 14 Laptop PC
lifecycle carbon footprint
206 kg CO_2

Manufacturing 76%
Distribution 5%
Use 19%
End of Life 0%

European Commission

Resource extraction and processing are responsible for 50% of greenhouse gas emissions and 90% of biodiversity loss.

Scaling up the circular economy is key to achieving climate neutrality by 2050, while decoupling economic growth from resource use and keeping resource use within planetary boundaries.

Antimony	Hafnium	Phosphorus
Baryte	Heavy Rare Earth Elements	Scandium
Beryllium	Light Rare Earth Elements	Silicon metal
Bismuth	Indium	Tantalum
Borate	Magnesium	Tungsten
Cobalt	Natural Graphite	Vanadium
Coking Coal	Natural Rubber	Bauxite
Fluorspar	Niobium	Lithium
Gallium	Platinum Group Metals	Titanium
Germanium	Phosphate rock	Strontium

The 2020 EU list consists of **30 'CRM: Critical Raw Materials'**, in 2011 there were 14, in 2014 20 and in 2017 27 CRM's.

Approximately 5 of 30 CRM's are partly recovered:

- PGM Platinum Group Metals (Platinum, Palladium, Rhodium, Ruthenium, Iridium)

- Indium

- Antimony

- Bismuth

- Cobalt

CRMs commonly used in IT equipment:

CRM	Applications in IT equipment
Antimony	Micro capacitors
Beryllium	High power transistors
Cobalt	Lithium-ion batteries (LIBs)
Gallium	Integrated circuits
Germanium	LEDs
Indium	Semiconductors, Pb-free welding, screens
Magnesium	Aluminium alloys
Natural graphite	Heat transfer
Niobium	Micro capacitors
PGMs	Connectors, capacitors, HDDs
REE – including neodymium	Magnets
Silicon metal	Semiconductors
Tantalum	Micro capacitors
Tungsten	Integrated circuits

Source: JRC, 2015

CRM in data servers:

Component	CRM
Lithium-Ion Batteries	Co
HDD	Dy
	Nd
SSD	Si
	(CRM found in PCB)
PCB	Pd
	Pt
	Sb
	Si
	Ga
	Ge
	Ta
	Co
Connectors	Sb
	Be
	Co
	Pd
	Si metal

Source: Peiró & Ardente, 2015

Amount of CRM found in data server:

| Material	Quantity in the server (g)	Material	Quantity in the server (g)
Sb	4.44		
Be	0.03	REEs	
Co	9.27	Dy	3.60
Mg	0.004	Nd	14.63
Pd	0.40	Pr	3.60
Si	11.23	Tb	0.75

Source: JRC, 2015

Raw Material	Price volatility	Stock: number of years of undisturbed production	End-of-liferecycling rate / recycle rate
Indium	+278%	25 years	5%
Antimony	+131%	10 years	20%
Beryllium	+82%	77 years	5%
Cobalt	+111%	45 years	32%
Ruthenium	+319%	165 years	10%
Germanium	+185%	19 years	0%
Tantalum	+135%	80 years	5%
Iridium	+321%	165 years	20%
Gallium	+141%	106 years	0%
Rhodium	+221%	165 years	20%
Palladium	+200%	165 years	20%
Platinum	+145%	170 years	20%

International policy goals
2030: stop biodiversity loss
2050: living in harmony with nature

Historical

1970   2010   2050   2100

Increased conservation efforts
+ more sustainable production
+ more sustainable consumption

Increased conservation efforts

Business as usual
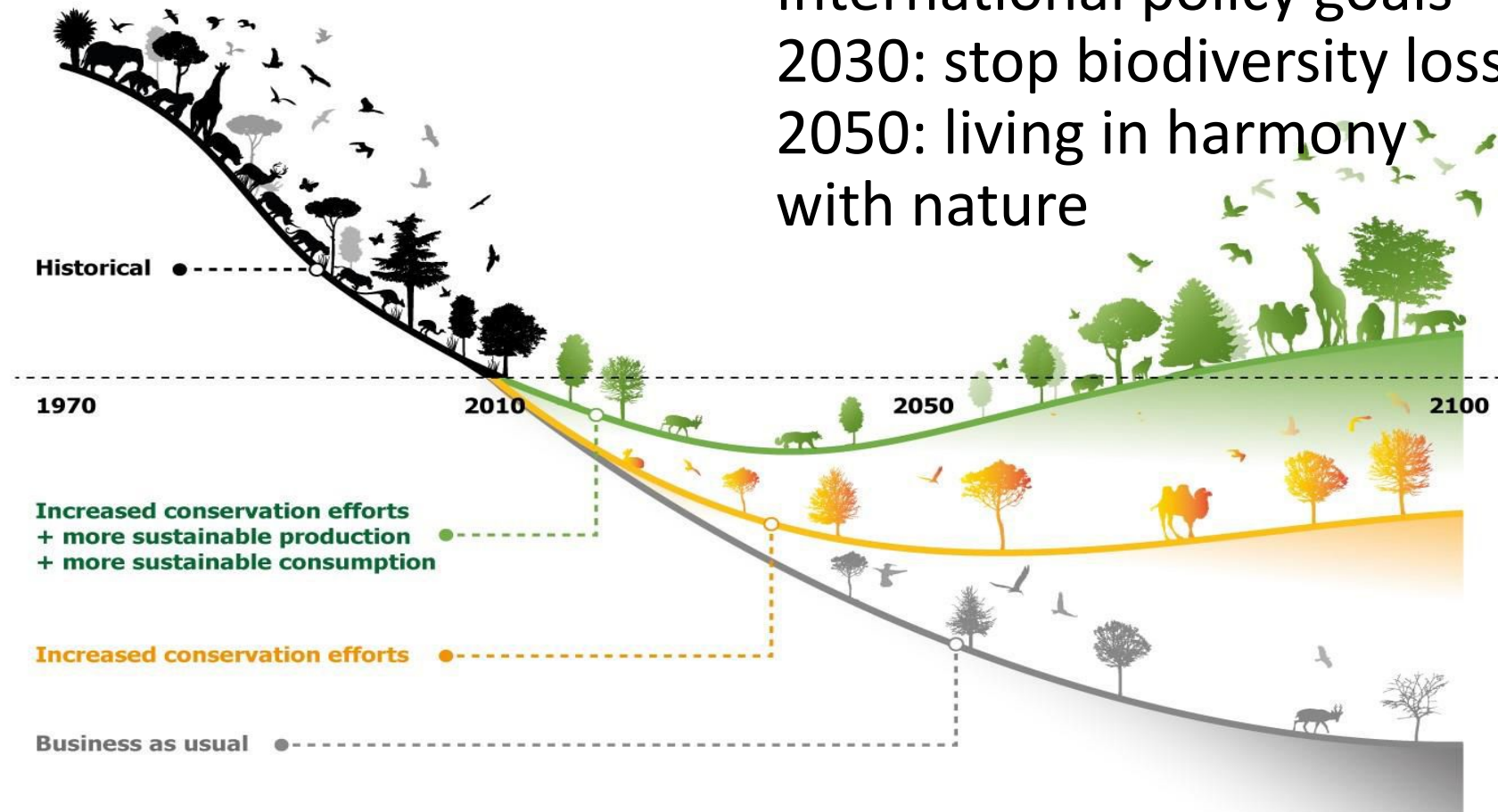
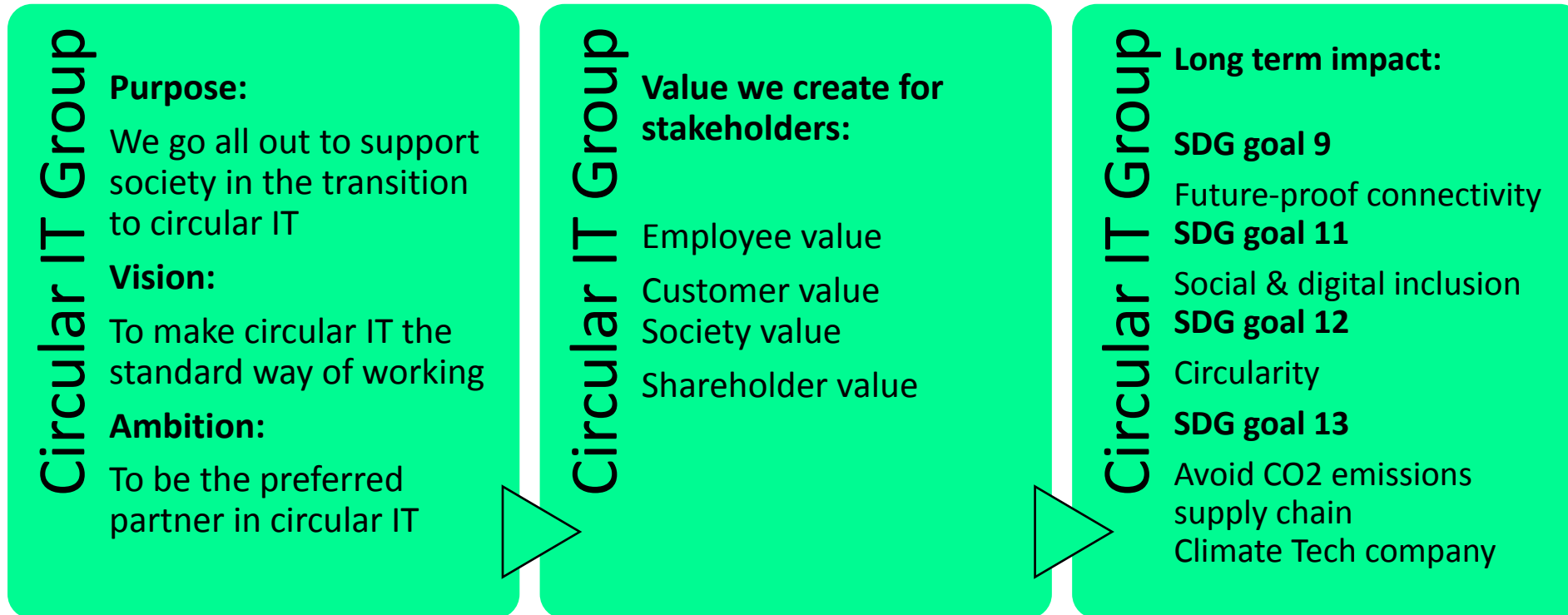This artwork illustrates the main findings of the article, but does not intend to accurately represent its results (https://doi.org/10.1038/s41586-020-2705-y)
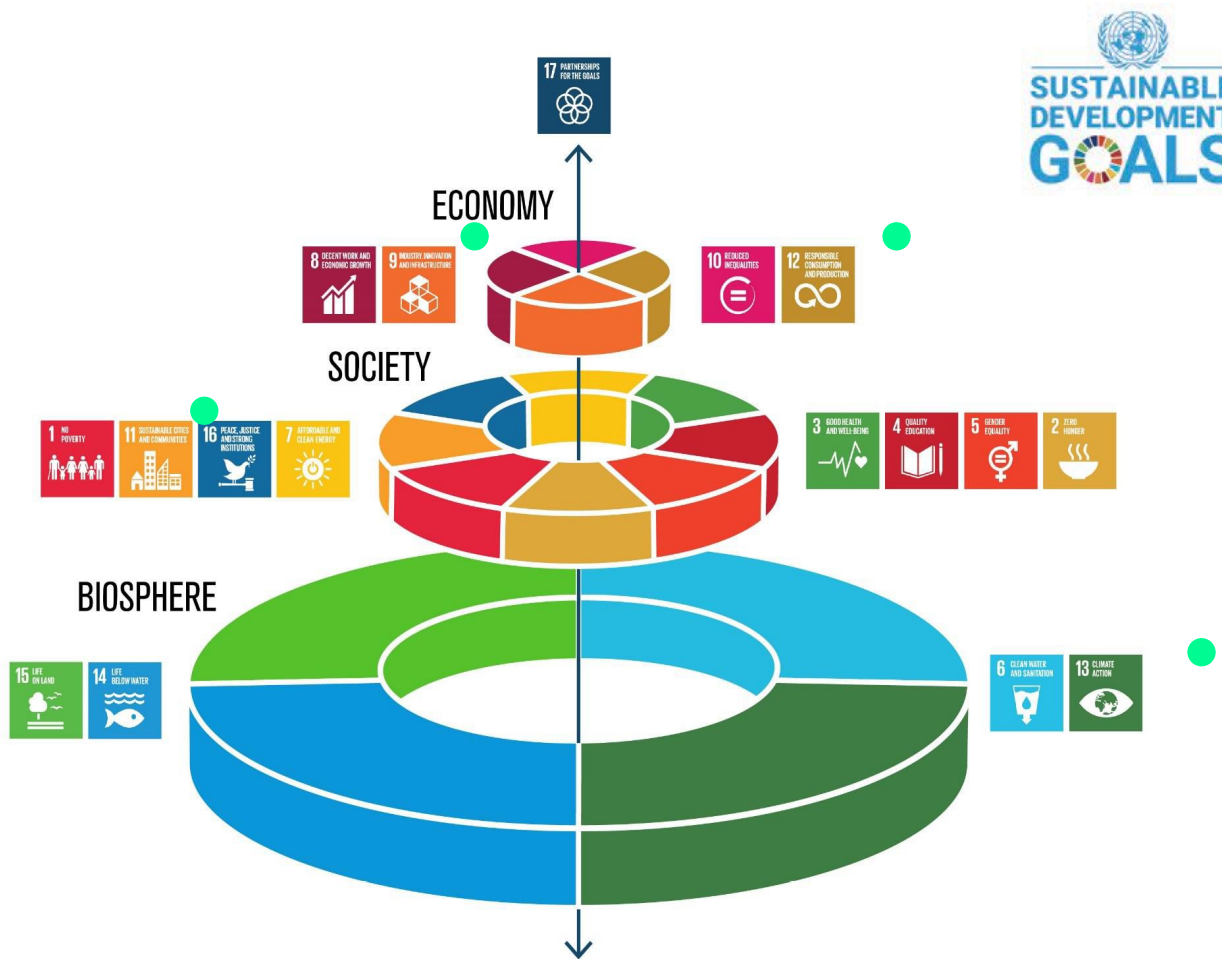
The **2030 Agenda for Sustainable Development**, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the **17 Sustainable Development Goals (SDGs)**, which are an urgent call for action by all countries - developed and developing - in a global partnership.

Circular IT Group

Purpose:

We go all out to support society in the transition to circular IT

Vision:

To make circular IT the standard way of working

Ambition:

To be the preferred partner in circular IT

Circular IT Group

Value we create for stakeholders:

Employee value
Customer value
Society value
Shareholder value

Circular IT Group

Long term impact:

SDG goal 9
Future-proof connectivity
SDG goal 11
Social & digital inclusion
SDG goal 12
Circularity
SDG goal 13
Avoid CO2 emissions supply chain
Climate Tech company

SUSTAINABLE DEVELOPMENT GOALS

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

	HaaS, Rental Buy-Back De-installation	Reverse logistics Data wiping Recommerce	Refurbishment Repair Recycling
Network Server Storage	✔	✔	✔
Computing Laptops	✔	✔	✔
Consumer Devices		✔	✔

Circular Reporting:

👉 **CO2 emissions / GHG** reduction report in kg and relative % to the life cycle.

👉 Overview of available **LCA data** of devices of different manufacturers.

👉 Development of circular partnerships and related circular reports e.g. regarding (Critical) **Raw Material composition** and consumption.

👉 **ReplanIT Project** with EU and City Hall of Amsterdam

Questions?
Let's Connect...

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