

How Finland redefined the idea of consumption and waste disposable through the circular economy roadmap

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FINLAND

Source: Finland Toolbox

1ST BEST GOVERNANCE IN THE WORLD

According to the Global Prosperity Index Finland has the best governance in the world. Variables like voter turnout, legislative independence and the number of women in parliament are placing Finland number one.



Source: Sigabon Institute

1ST GREENEST COUNTRY IN THE WORLD

ENVIRONMENTAL PERFORMANCE INDEX 2022

According to the Environmental Performance Index, Finland is the greenest country in the world. Finland's top ranking is mostly based on country's societal commitment to achieve carbon-neutral society that does not exceed nature's carrying capacity by 2050.



Source: EPI Institute

1ST FOR R&D PERSONNEL

Finland has most professionals working in R&D in proportion to population.



Source: Worlding Innovation Institute 2022

2ND GLOBAL CLEANTECH INNOVATION INDEX

Finland ranked second in the Global Cleantech Innovation Index by MIF and Cleantech Group. 40 countries were evaluated on 15 indicators related to the creation, commercialisation and growth of cleantech start-ups.



Source: Cleantech Group

2ND HIGHEST QUALITY OF LIFE

Finland ranks 2nd according to the Social Progress Index published by Social Progress Imperative. It scores highly on almost every index in the report, from basic needs, foundations of wellbeing and personal freedoms.



Source: Social Progress Imperative

3RD MOST SOCIALLY JUST COUNTRY

The EU Social Justice Index measures six key dimensions of social justice: poverty prevention, equitable education, labour market access, social cohesion & non-discrimination, health, and intergenerational justice. Finland was ranked the 3rd most socially just country in the EU.



Source: Bertelsmann Stiftung 2022

5 key facts about Sitra

1. A gift from Parliament to the 50-year-old Finland.
2. An independent foresight agency: futurologist, researcher, visionary, developer, experimentalist, partner, trainer, networker.
3. Funded by returns on endowment capital and capital investments.
4. Envisages Finland as a successful pioneer in sustainable well-being.
5. Its vision is supported by three themes, six focus areas and dozens of projects.

+1

Building our future
together

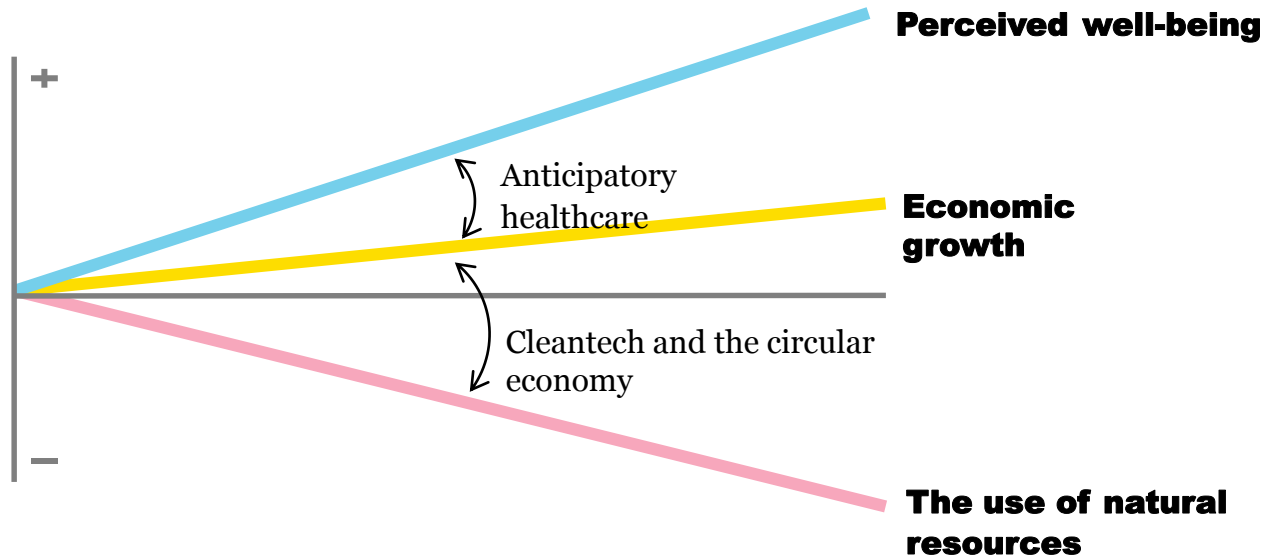


SITRA

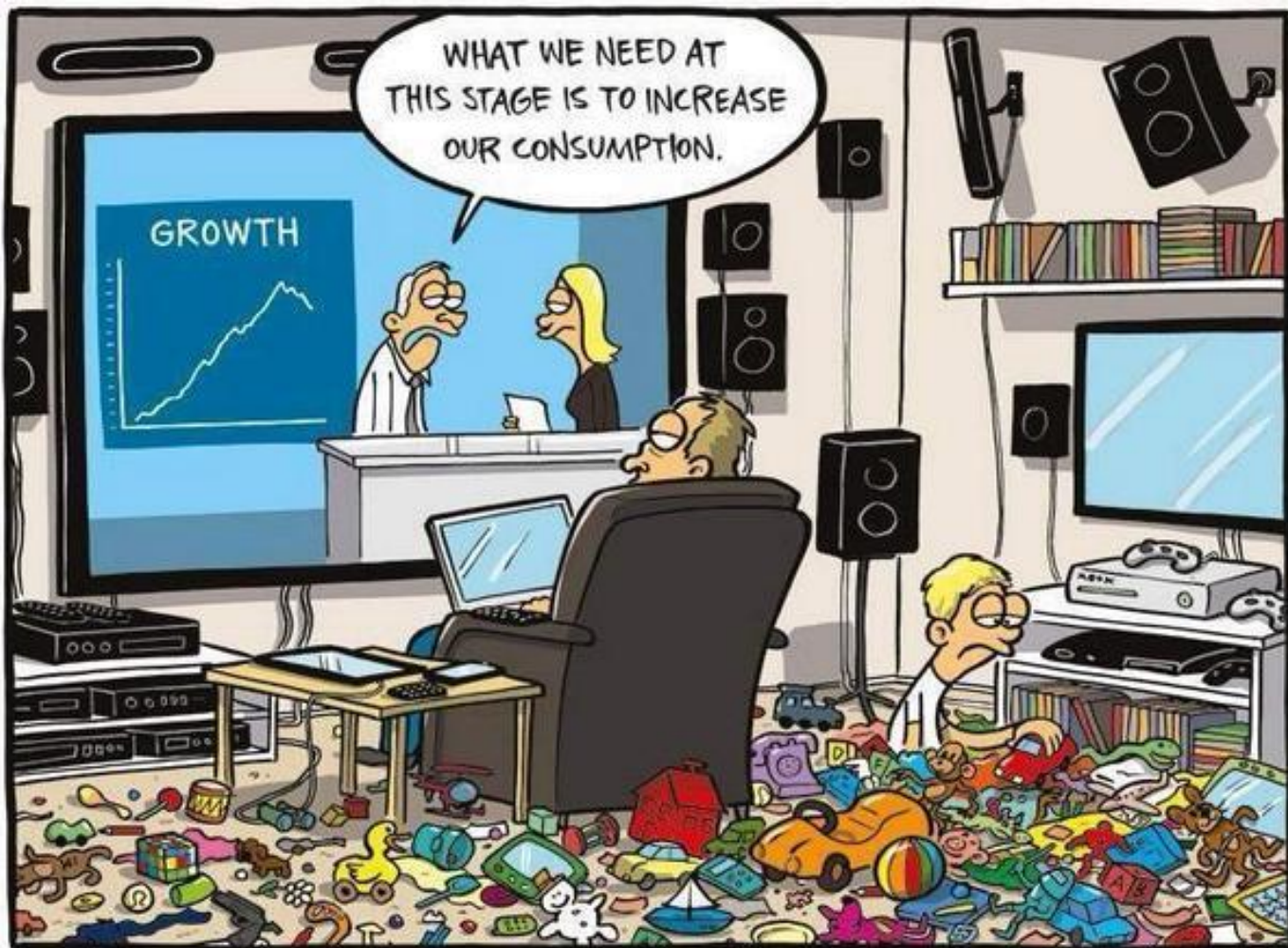
CIRCULAR ECONOMY

THE BIGGEST CHALLENGE OF OUR TIME

The decoupling of perceived well-being and economic growth from the consumption of natural resources



- Digitalisation plays a key role as an enabler of new solutions.
- Finland could play a bigger role than its size merits in finding solutions to the ecological and social problems of the world!



Economic Sociology and Political Economy community

WWW.MAXGUSTAFSON.COM

SITRA

The World is full of waste, yet the demand for raw materials is increasing globally

Why do we throw away about 80 % of consumer products and their materials?

On average, materials in Europe are used **only once.**

10-15 %
of building materials goes to waste during construction.

The average occupancy rate of cars is about **8 %**

31 % of produced food goes to waste in value chain. In Finland it makes **300-400 million kilos** per year.

Offices' occupancy rate is about **40 %**

The global demand for raw materials will increase during the next 20 years

Farmland, over **+ 200 %**

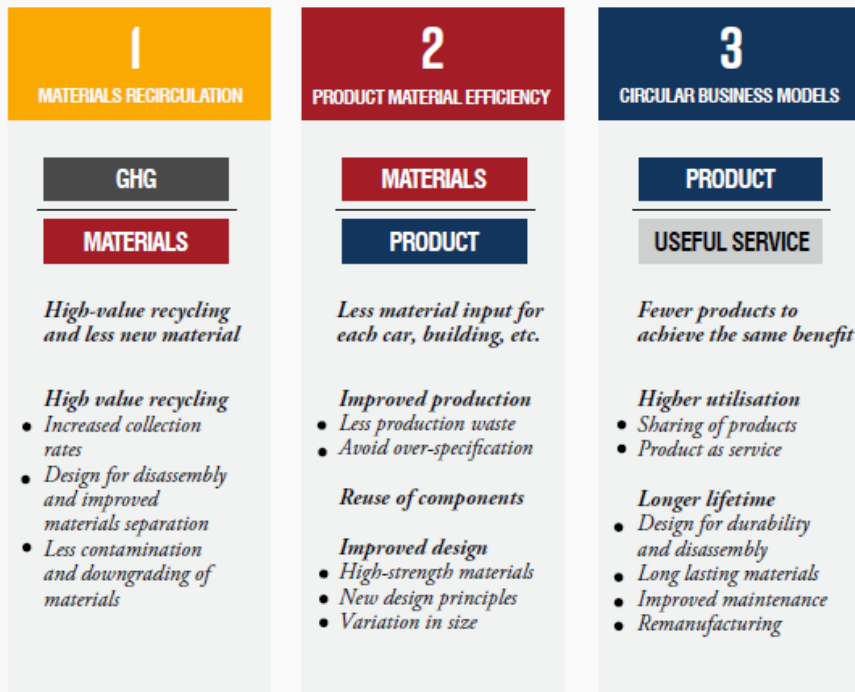
Water **+ 137 %**

Steel **+ 57 %**

Energy **+ 32 %**

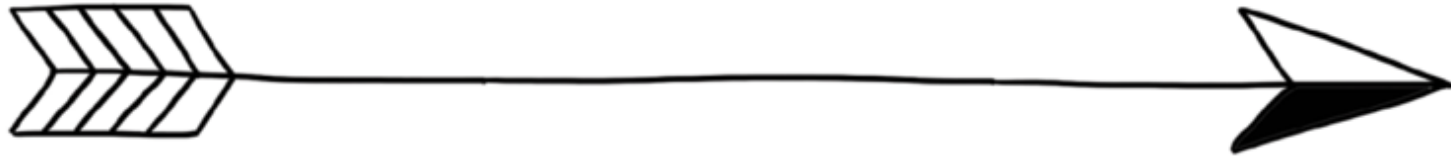
HOW THE CIRCULAR ECONOMY REDUCES CO₂ EMISSIONS

Getting more from the materials we already have



INNOVATION

DISRUPTION

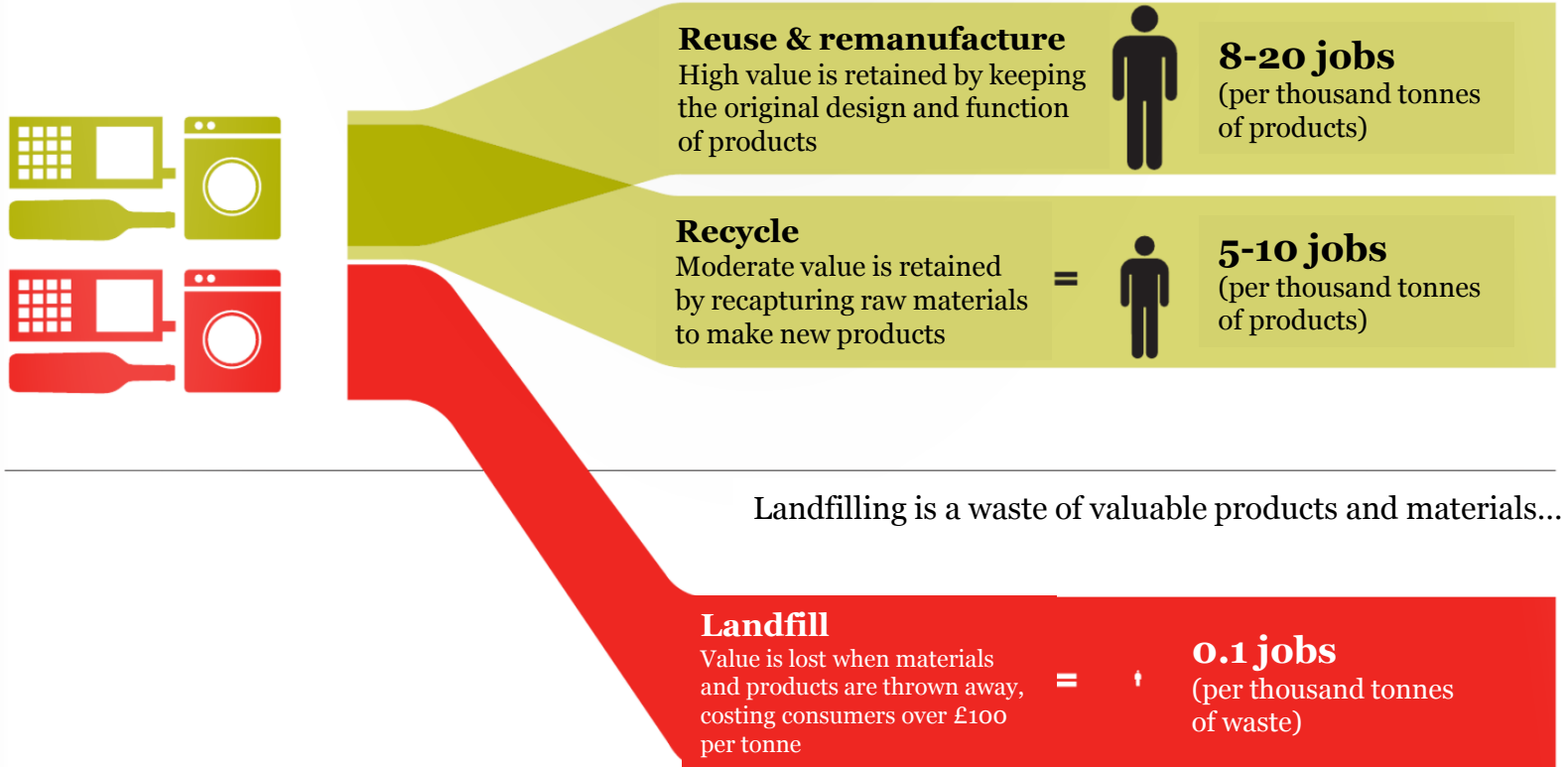


DOING THE SAME
THINGS A BIT
BETTER

DOING NEW
THINGS

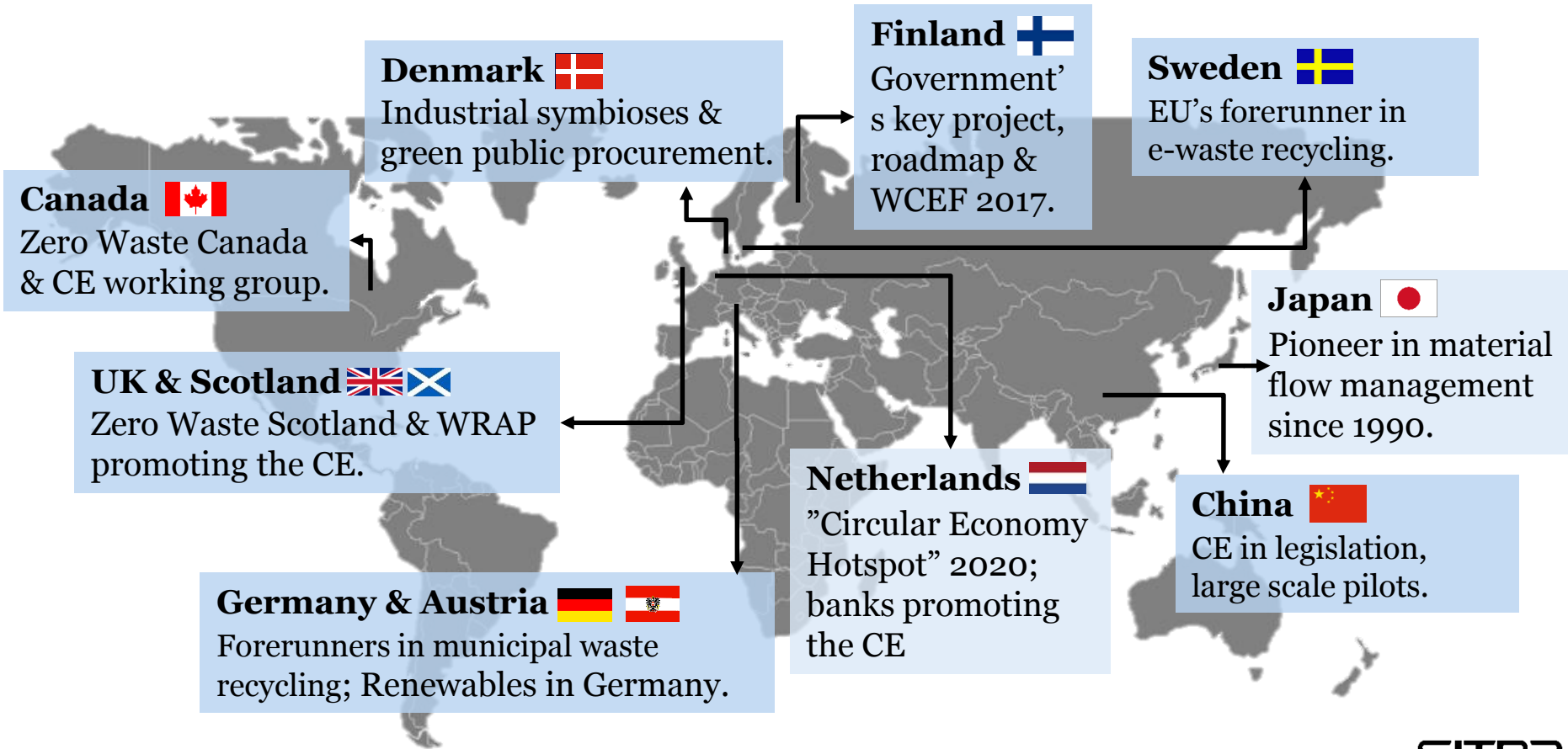
MAKING THINGS THAT
MAKE THE OLD THINGS
OBSOLETE

The sale of products for reuse and remanufacture supports more jobs



Landfilling is a waste of valuable products and materials...

Circular Economy advances across the globe





GOVERNANCE



MUNICIPALITIES & CITIES



CITIZENS



COMPANIES



R&D and EDUCATION



Finland becomes a world leader in the circular economy by 2025

Road map's ambition:



Increased exports and growth for companies from scalable and comprehensive circular economy solutions.



Functional **domestic market**.



Circular economy into the mainstream through **actions** and **concrete pilots**.

Economy, environment & society:



Circular economy as a new cornerstone for the Finnish economy.



Finland as a model country for the challenge of scarcity.



From adapter to pioneer.

THIS IS HOW WE CREATE A
Circular economy

IN FINLAND



Use
The product should be used for as long as possible, it must be serviced and repaired and parts changed when necessary.



Consumer

Consumer demand creates a supply of sustainable products and commodities.



From company to company

Companies will procure and require their subcontractors to provide parts that can be easily repaired – instead of single-use parts.

Retail

Retailers will sell services instead of goods and inform customers about maintenance and repair services, environmental impacts, materials and further use in the final phase of the life cycle.

Distribution

Transport co-ordinated between different sectors, renewable fuels and jointly owned transport equipment will be used in distribution.

Manufacturing industry

Long-term products that can be repaired and maintained will be brought onto the market. Materials will be separated at the end of the product's life cycle.

Material processing

Process planning will reduce the energy needed to refine huge amounts of raw materials. The use of side streams will be taken into consideration.

Primary sector (raw materials sector)

The raw materials are capital for the primary sector. Sustainable solutions are based on the wise use of raw materials.



The life cycle continues in a new loop

- 1 Sustainable food system
- 2 Forest-based loops
- 3 Technical loops
- 4 Transport and logistics
- 5 Common action

Circular economy can be boosted through long-term systemic changes, quick experiments, scalable solutions, and stimulation of demand

Examples of actions in Finland's roadmap to a circular economy

**Policy actions
for creating
functional
domestic market**

The creation of indicators for Finnish road map to a CE

CE in public procurement

Regional sustainable food system

Financing for public-private consortiums
e.g. on revolutionizing transport in regions

CE to become a part of education and future decision-making: CE in study programs of schools and universities

World Circular Economy Forum
2017-2019

A list of the most interesting companies in the CE in Finland

Large and small projects, and sharing best practices

Cooperation with European Climate Foundation – CE as a means for mitigating climate change

A list of the most interesting CE actions in municipalities

Finnish industrial CE Centre in Kemi

CE demonstration plant for recycling valuable metals of waste electrical and electronic equipment

26 PROJECTS

**CIRCULAR ECONOMY TEACHING
FOR ALL LEVELS OF EDUCATION**



Circular economy teaching for all levels of education - Creating experts and change agents of tomorrow

Advanced education system is one of Finland's strengths. We co-operate with all levels of education to ensure that circular economy thinking reaches as many Finns as possible – Providing future experts with the tools they can use to build a sustainable future and new business.

Examples of what we're doing:

Creating inspirational courses, study modules and material on circular economy

Explaining circular economy in an inspirational and understandable form, making students, as well as teachers, understand circularity in a holistic manner. All material and courses are linked to current syllabus.

Making inspirational school visits

Students to actively participate in advancing circular economy by interesting classes f.e. what possibilities does sharing economy have in the class or how can a student minimize consuming in everyday life.

Including circular economy businesses in miniature city concept

Circular economy models are build into learning environment Me & MyCity, which is rewarded as world's best educational innovation with annually 75 000 students participating.



Common action



A total of 73 500 reached students and 1 800 reached teachers in all educational levels

Co-operating with 11 universities, 14 universities of applied sciences, 12 vocational colleges and many other organizations

Me & MyCity reached 76 % of all sixths graders and 26 % of ninth graders

More about our education projects [here!](#)

Recovery of raw materials from electronic waste – Urban mining instead of virgin materials

Recyclable WEEE is a significant source of precious materials that need to be returned to the cycle. Instead of mining virgin materials let's mine enriched urban raw material from e-waste.

A State-of-art recycling pilot facility is planned to recover precious materials from electronic waste ash.

How is Sitra helping?

Carrying out a research project to gain significant new information on:

- 1) How to separate valuable materials from ash
- 2) Productising of valuable materials from e-waste

3

Technical loops



Globally about 50 million tons of e-waste is generated each year

Waste is rich with critical metals and rare-earth elements, needed increasingly for f.e. EV batteries and wind power facilities

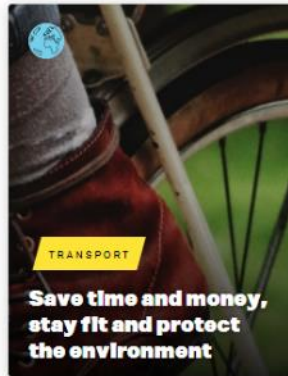
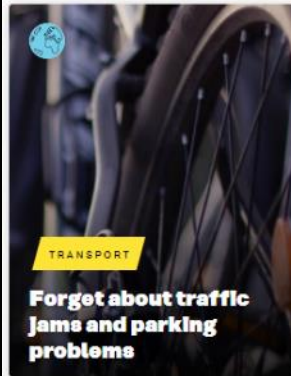
Growing demand for precious materials creates risks due to uncertainties in availability and price development

TEST YOURSELF

AND FIND OUT WHETHER YOU ARE A THREAT OR AN OPPORTUNITY.

Is your lifestyle good or bad for the environment?

100 SMART
ACTIONS



Helsinki Metropolitan Smart & Clean Foundation

“The world’s leading circular economy city”





The most interesting companies in the circular economy in Finland

A list of companies to inspire economic change.

Five business models for the circular economy



Product-life extension

Products are used according to their original purpose for as long as possible or repaired and refurbished for multiple re-uses, thus reducing the need for purchasing and manufacturing new products.



Product as a service

The customer pays for certain functions or performance and avoids the risks of ownership. The total costs of ownership remain with the service provider, with revenue being earned by means of, for example, a leasing or rental agreement.



Sharing platforms

Digital-based platforms are used to promote the increased use of goods and resources and the extension of their life cycle, such as by renting, selling, sharing and re-use.



Renewability

Renewable, recyclable and biodegradable materials, as well as the principles of eco-design, are preferred for products and their design. Fossil fuels are replaced by renewable energy.



Resource efficiency and recycling

Technological development enhances resource efficiency in value chains, processes and products, and allows for more effective recycling. Side-streams are valuable raw materials for recycled products and materials.

Example companies on the list



3 Step IT
IT equipment
life-cycle management

Lassila & Tikanoja
Re-use
of pallets

Valtra
Remanufacturing
of gearboxes



EkoRent
Shared electric
vehicle service

Enevo
Optimisation
of waste collection

Lindström
Work uniforms
as a service

RePack
Reusable
delivery packaging

Valtavalo
LED lighting
as a service



Shareit Blox Car
Peer-to-peer car
sharing service

Sharetribe
Service for creating
a marketplace website

Swap.com
Innovative online
consignment and thrift store



Kotkamills
Easily recyclable
consumer paperboard cups

Neste
Renewable diesel
made from waste and residues



Grano and TouchPoint
New uses for advertising
banners in business gifts
through company co-operation

Eko-Expert
Recycled blow-in
insulation made
from surplus
mineral wool

Ekokem
Used plastic
as a recycled raw
material

Rec Alkaline
Recycled nutrients from
alkaline batteries

Remake
Designer clothing collection
made from used clothes

2018
W
C E
F

WORLD CIRCULAR
ECONOMY FORUM **JAPAN**



An initiative of The World Economic Forum and The Forum of Young Global Leaders

The Circulars 2018

WINNER

The World Economic Forum Award for
Circular Economy Public Sector

thecirculars.org

In collaboration with Accenture Strategy

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Finland is leading the way to a circular economy



<https://youtu.be/u1bs-C61bt8>

Thank you!

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