Tere tulemast

Välkommen

Witamy

Welcome

laipni lūdzam

CommitClimate

Learning Platform
Training Module *Circular Economy (1)*

Outlines

- **What is Circular Economy?**
- **Why does it matter?**
- **The role of municipalities and local communities**
- **Bio-based economy**
- **Life Cycle Analysis**
- **Landfill mining**
- **Paper waste**
- **Food waste**
- **Textile waste**
- **Plastic waste**
- **E-waste**
- **Good example: Car-sharing**
- **Your activity: Paper versus plastic bags?**

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What is Circular Economy?

"The circular economy is a system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting."

The circular economy is based on three principles:
- Eliminate waste and pollution.
- Circulate products and materials (at their highest value).
- Regenerate nature.

The circular economy model:
less raw material, less waste, fewer emissions

Raw materials

Sustainable design

Production

Waste management

CIRCULAR ECONOMY

Residual waste

Collection

Consumption Reuse Repair

Distribution

Source: European Parliament Research Service

What is Circular Economy?

Why does it matter?

- **Protect the environment**
  Reusing and recycling products would slow down the use of natural resources, reduce landscape and habitat disruption and help to limit biodiversity loss. Another benefit from the circular economy is a reduction in total annual greenhouse gas emissions.

- **Reduce raw material dependence**
  The world's population is growing and with it the demand for raw materials. However, the supply of crucial raw materials is limited.

- **Create jobs and save consumers money**
  Recycling raw materials mitigates the risks associated with supply, such as price volatility, availability and import dependency.

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The role of municipalities and local communities

Municipalities have a high concentration of resources, capital, data, and talent spread over a relatively small geographic area and are centers for innovation:

- Collaboration between citizens, government, research facilities, and businesses.
- Circular public procurement:
  When local authorities buy products and services from private companies, they can play a major role in driving demand for products and services that promote the circular economy.
- Relevant sectors: Buildings, mobility and products.
- Best practice inspires companies and citizens.

Bio-based economy – principles

## Eliminate waste and pollution

A circular economy reveals and designs out the negative impacts of economic activity that cause damage to human health and natural systems. This includes the release of greenhouse gases and hazardous substances and the pollution of air, land, and water.

Circulate products and materials

A circular economy favors activities that preserve value in the form of energy, labor, and materials. This means designing for durability, reuse and recycling to keep products and materials circulating.

Regenerate nature

A circular economy avoids the use of non-renewable resources and preserves or enhances renewable ones, for instance by returning valuable nutrients to the soil to support regeneration.
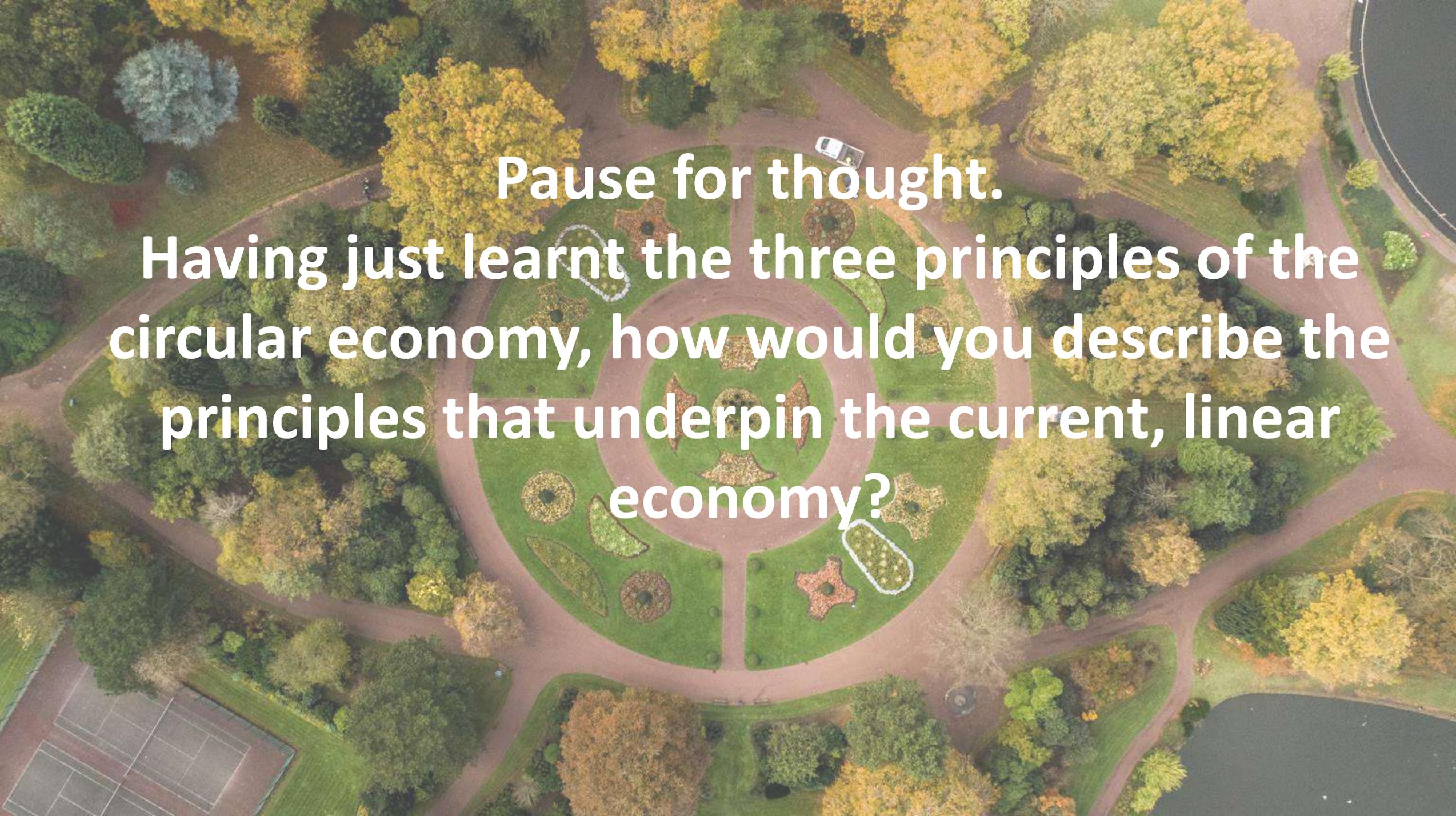
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Pause for thought.
Having just learnt the three principles of the circular economy, how would you describe the principles that underpin the current, linear economy?

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Life Cycle Assessment LCA

"Life Cycle Assessment, also known as Life Cycle Analysis, (LCA) is a process for evaluating the environmental impacts of a product or service over the course of its entire life."

It is often used to determine the best performing product, service, or other solution, at a given point in time, in terms of specific environmental impacts, such as carbon emissions.

Life cycle assessment covers all relevant inputs from the environment (e.g., ores and crude oil, water, land use) as well as emissions into air, water and soil (e.g., carbon dioxide and nitrogen oxides). The International Organization for Standardization provides guidelines for conducting a LCA according to ISO 14040 and 14044. However, like any tool, it has its limitations, and can give misleading or contradictory outcomes if not used carefully.

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Avoiding consumption-based emissions: Sharing economy, re-use and repair

The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended.

It implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible thanks to recycling. These can be productively used again and again, thereby creating further value.

This is a departure from the traditional, linear economic model, which is based on a take-make-consume-throw away pattern.

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Landfill mining

Enhanced Landfill mining (ELFM) is the process of excavating landfill sites to recover resources to produce new materials and energy in line with the circular economy.
Landfills are often filled with waste products which can be recycled (for example, plastics and paper).
Therefore, landfill sites are an untapped resources for valuable materials.
Did you know?
In Europe, there is estimated to be 500,000 landfill sites.
95% of municipal solid waste ends up

in landfill worldwide each year.

Paper waste

Paper is one of the most recycled materials globally and is well established. However, the recycling of paper is not a limitless process. Paper recycling is made up of several different stages, which ultimately results in reduction in the quality of the final product.

For this reason, there are downsides to using paper, and the pros and cons need to be considered for all uses.

Did you know?

Recycling one ton of paper saves approximately 17 trees.

The fibers that make up paper can only be recycled 7 times.

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Food waste

A huge amount of food waste is generated each day. Waste originates in homes, businesses, and the supply chain. The disposal of this waste uses up landfill space, releases greenhouse emissions, and costs us in transportation and landfill tax.

Due to the value and sheer volume of food waste, it is logical to see this waste as an opportunity rather than a problem. By using food waste to produce a product we can solve the problems of greenhouse emissions and financial loss that come with the waste.

Did you know?

1/3 of food produced globally is wasted, with a cost of around $1 Trillion Euro.

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Textile waste

Textile waste is composed of discarded clothing, sheets, curtains and other items made from natural or artificial fibers. When textiles are disposed of in landfills, they can pollute the environment through the production of toxic substances and greenhouse gases. In addition, finite natural resources must be consumed to then produce new textiles.

Did you know?

Approximately one bin lorry of textiles is landfilled or burned every second.

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Plastic waste

While plastic has many valuable uses, we have become addicted to single-use plastic products — with severe environmental, social, economic and health consequences. Around the world, one million plastic bottles are purchased every minute, while up to five trillion plastic bags are used worldwide every year. In total, half of all plastic produced is designed for single-use purposes – used just once and then thrown away.

Did you know?

Plastic waste — whether in a river, the ocean, or on land — can persist in the environment for centuries.

E-waste

Electronic waste (e-waste) is simply discarded electrical and electronic equipment and is one of the largest global waste streams. Unfortunately, much of it ends up in landfill, polluting the environment. Up to 50 million tons are disposed of each year – a sizeable and expensive waste stream to deal with, or perhaps a valuable resource for new materials and products.

Did you know?

300 million computers are made every year.

There are more than 7 billion mobile phones in use today.

Only around 17% of e-waste is recycled.
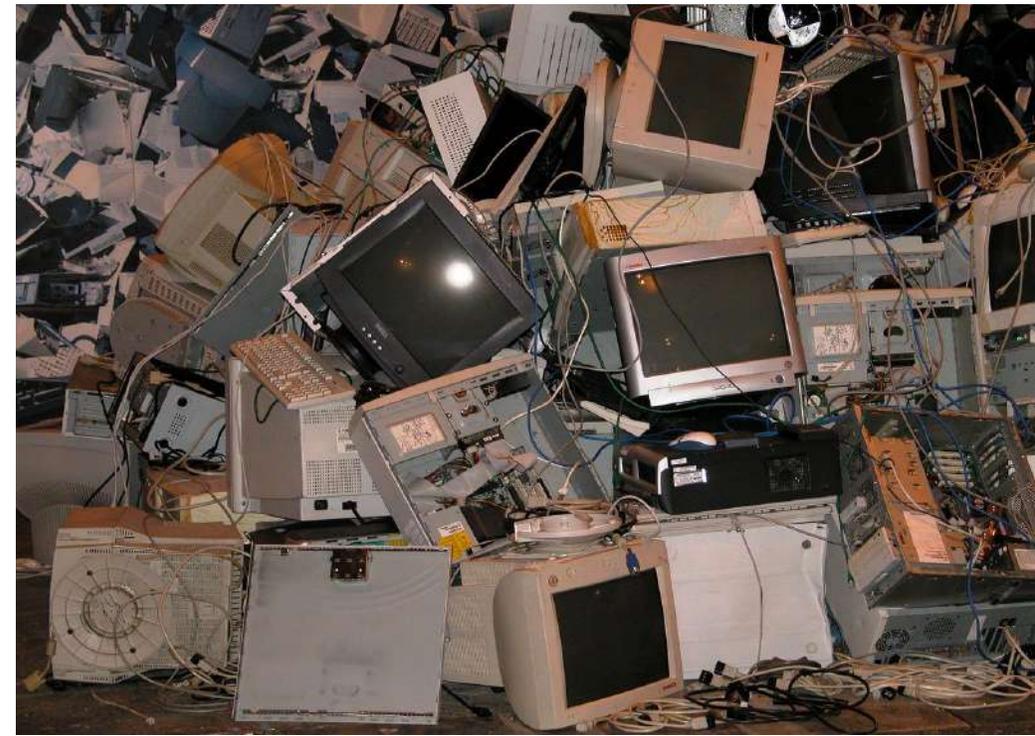
Good example: Autolevi - Airbnb for cars

Founded: 2013

Size: Micro company

Autolevi offers an easy-to-use and a trusted way to share cars from peer to peer. You can rent a car when and where you need it. Or start earning an extra income if you already own a vehicle.

Autolevi allows more people to share cars, saving the environment and offering a cheaper alternative to ownership. Car owners can also earn back their investment by renting out their vehicles.

There are over 40 000 users in Autolevi's car sharing community and more than 2200 vehicles in Estonia, Latvia and Finland.
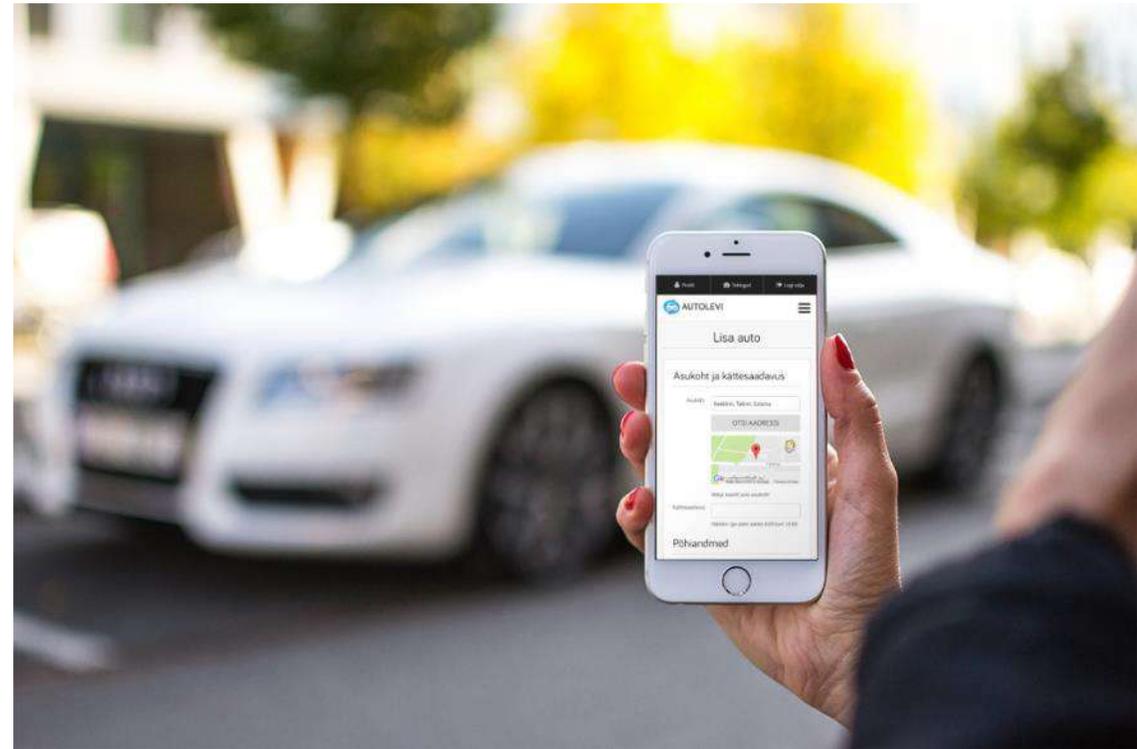
Your turn ☺ - Paper or plastic bags?

Since the dawn of supermarkets, the question of "paper or plastic?" has echoed through the checkout lanes. Historically, paper bags enjoyed a significant hold on the market. However, as petroleum-based products like plastic began making their entrance, the scales began to tip. By the 1980s, plastic bags were becoming the preferred choice.

Take into consideration:

- Energy and resources for manufacturing
- Transportation and distribution
- Environmental Impact: Decomposition and recycling rates
- The Ocean's Perspective: Marine Life and Pollution

What´s your conclusions and which alternative would you recommend?

Thank You for your attention!

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