Project Partners

Swideas

1506
UNIVERSITÀ
DEGLI STUDI
DI URBINO
CARLO BO

Lai-momo

SIMORA
RAZVOJNA AGENCIJA
SISAČKO MOSLAVAČKE ŽUPANIJE

eurada

INSPIRING REVOLUTIONARY EDUCATIONAL CREDENTIALS

MODULE 9

One Block for Educational Credentials (OBEC)
2020-1-SE01-KA204-077803

Co-funded by the
Erasmus+ Programme
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OBEC

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WORKING IN A CIRCULAR ECONOMY CONTEXT

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MODULE CONTENT

OBEC - One Block for Educational Credentials

SESSION 1

WHY IS THERE A NEED FOR A CIRCULAR ECONOMY?

- The linear Economy – aspects, issues, and effects
- Reflection
- The main benefits of the Circular Economy
- Reflection
- Quiz

SESSION 2

WHAT IS THE CIRCULAR ECONOMY AND HOW CAN WE ACHIEVE IT?

- What is the Circular Economy?
- Incentives and Obstacles
- Reflection
- Circular Economy Practices
- Reflection
- Quiz

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MODULE CONTENT

OBEC - One Block for Educational Credentials

SESSION 3

UPSKILLING YOUR CV

- Introduction to the expected labour market changes that a Circular Economy may entail
- Reflection
- Re-cap: circular practices and principles
- Resource efficiency: the necessary skills
- Research Exercise

SESSION 4

UPSKILLING YOUR BUSINESS

- Circular Economy Principles
- Circular Economy Business Models
- Group Exercise
- Quiz

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WHY OBEC?

"Outdated credential systems limit our ability to create new pathways to education, in particular for those who lack access and need it most"

Joint Research Centre; Grech, A. and Camilleri, A. F., 2017

A student from Bangladesh University should be able to demonstrate that a certificate is authentic and verifiable without having to contact the country that issued the certificate in the first place.

Professor Giaglis, quoted in Grech, A. and Camilleri, A. F., 2017

More than 40% of the employed highly educated third-country nationals work below their qualification levels in the EU.

European Commission, n.d.

GET TO KNOW EACH OTHER

YOUR IMAGE!

Choose one image that best describes your motivation to join this course. Drop it on the Jamboard and write your name next to it!

Jamboard instructions:

- Enter the Jamboard following this link: https://jamboard.google.com/d/1YYYy-UDlO6htJ6jk1xpjYonDFWn9crd2l4qO4i1f2HM/viewer
- Click on the "Add image" button on the left bar.
- Upload your image or find one on Google images!

GET TO KNOW EACH OTHER

YOUR IMAGE!

- Name
- Nationality
- Where do you live?
- Why this image?

SESSION 1

WHY IS THERE A NEED FOR A CIRCULAR ECONOMY?

01

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WHAT IS A LINEAR ECONOMY?

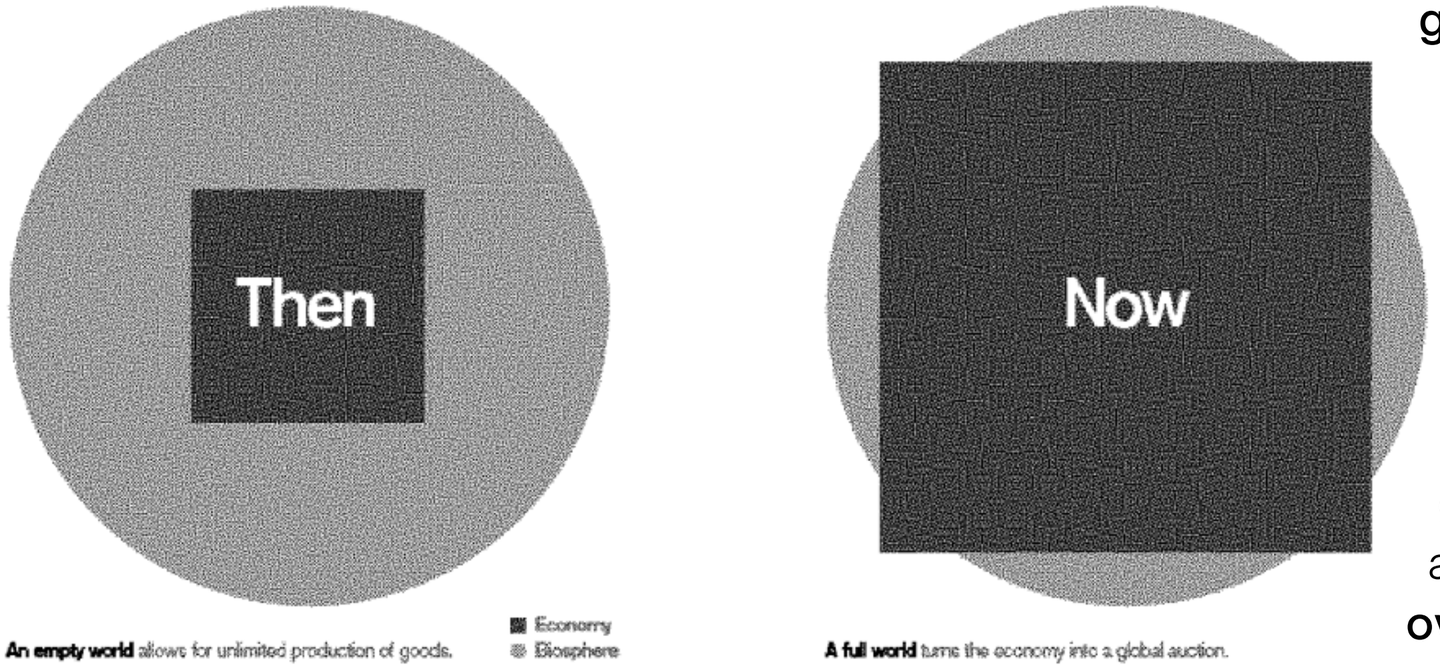
TAKE - MAKE - DISPOSE

The motto of our current economic system

It means that **natural resources are extracted** to **create products** which are used to meet a consumer's need. Then, when the consumer's need is met, the product is **disposed of**.

In conclusion, natural resources are used without being returned to the system.

Figure 1. Relation between economy and biosphere



Source: Global Footprint, Annual Report 2012, p.21

"For a long period of time **economy (at a global level) represented a tiny fraction in relation with the global ecosystem**. Therefore, in a world where humankind occupied just a small part, the idea of unlimited production seemed possible mainly because it was just theoretical. In the decades after World War II this proportion occupied by humankind in the global ecosystem dramatically increased and **we reached a point in 2010 when the overall needs exceeded by more than 50% the regenerative capacity of the Earth.**"

- Bonciu, 2014

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WHAT ARE THE CONSEQUENCES?

12 min research
3 min per group to present results

1. FOR THE ECONOMY
2. FOR THE PEOPLE
3. FOR THE INTERNATIONAL RELATIONS
4. FOR THE PLANET

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WHAT ARE THE CONSEQUENCES?

FOR THE ECONOMY

- Increasing costs related to extraction of resources, to environment protection, and waste management (Bonciu, 2014)
- Volatility of prices of resources and products (Ellen MacArthur Foundation, 2013)

FOR THE PEOPLE

- Impact of economic activities and pollution on health and well-being (Bonciu, 2014)

FOR THE INTERNATIONAL RELATIONS

- Inequality among countries: Heavy reliance on resource extraction from developing countries whereas there's a large concentration of consumers in the most developed regions of the world (e.g. western societies) (Sariatli, 2017)

FOR THE PLANET

- The planet needs one year and a half to produce and absorb what is consumed and eliminated in one year
- We need 1,5 Earths to sustain our current model. (Bonciu, 2014)

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SHORT COFFEE BREAK (10 MINUTES)

"ACCORDING TO THE ESTIMATES OF THE UNITED NATIONS, IF THE CURRENT TRENDS CONTINUE BY 2030, HUMANKIND WOULD NEED TWO EARTHS TO FUNCTION AND BY 2050 THREE EARTHS."

- BONCIU, 2014

WERE YOU AWARE OF THIS?

DO YOU THINK THERE'S A NEED FOR CHANGE?

WHY?

What is happening on the planet?

High imbalances between developed and developing countries

Overexploitation of natural resources

Forest and biodiversity losses

High levels of pollution and waste

Endangered water reserves

Climate change

Intensive production and consumption

Progressive population increase and resource demand

Source: U-Eco Project; Training Modules, Module 3

REFLECTION

HOW DO YOU THINK YOU CAN SUPPORT THIS CHANGE?

Keep in mind: in the next session you'll be introduced to practices that can help you countering the take-make-dispose model!

SHORT COFFEE BREAK (5 MINUTES)

WHAT IF WE RESPECTED THE PLANETARY BOUNDARIES AND KEPT RESOURCES IN THE LOOP?

Source: U-Eco Project; Training Modules, Module 3

SOCIAL BENEFITS

- Employment increase, especially in areas where unemployment is elevated (Rizos, Tuokko and
- Behrens, 2017);
- Increase in high-skilled employment, give the demand for new skills (ibid);
- Distributed impacts among varied income groups (ibid).

ECONOMIC BENEFITS

- Increased resource productivity, namely (Glossary:Resource productivity, 2016);
- Technological innovations (The Circular Economy In Detail, n.d.);
- New jobs creation and the re-introduction of old jobs that had disappeared in recent times (Circular economy a source of job creation and re-creation, 2018).

ENVIRONMENTAL BENEFITS

- Decreased GHGs emissions and resource use;
- Supported land productivity and soil health (Sustainable Europe Research Institute (SERI),
- Improved conservation of biodiversity and landscapes
- Decreased dependency on chemical fertilizers (The Circular Economy In Detail, n.d.).

REFLECTION

HOW CAN YOUR BUSINESS OR CV BENEFIT FROM THIS?

Let's take notes to come back to in the next sessions!

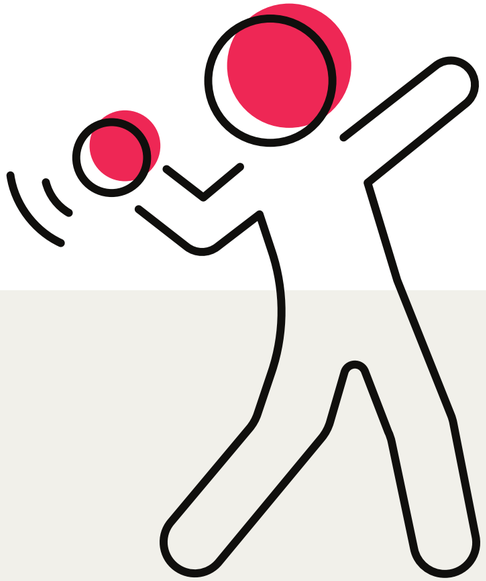
QUIZ + FEEDBACK TIME!

WHAT IS THE CIRCULAR ECONOMY AND HOW CAN WE ACHIEVE IT?

SESSION 2

02

ICE-BREAKER



THE VIRTUAL FAST BALL!

1.TAKE A BALL! (or something similar)
2. When it's your turn, stand up!
3. Quickly state the following:
   - Name
   - Favourite meal
4. When you are done, pass your virtual ball to another person who has not spoken yet as fast as possible!

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WHAT IS THE CIRCULAR ECONOMY?

Jamboard brainstorm!

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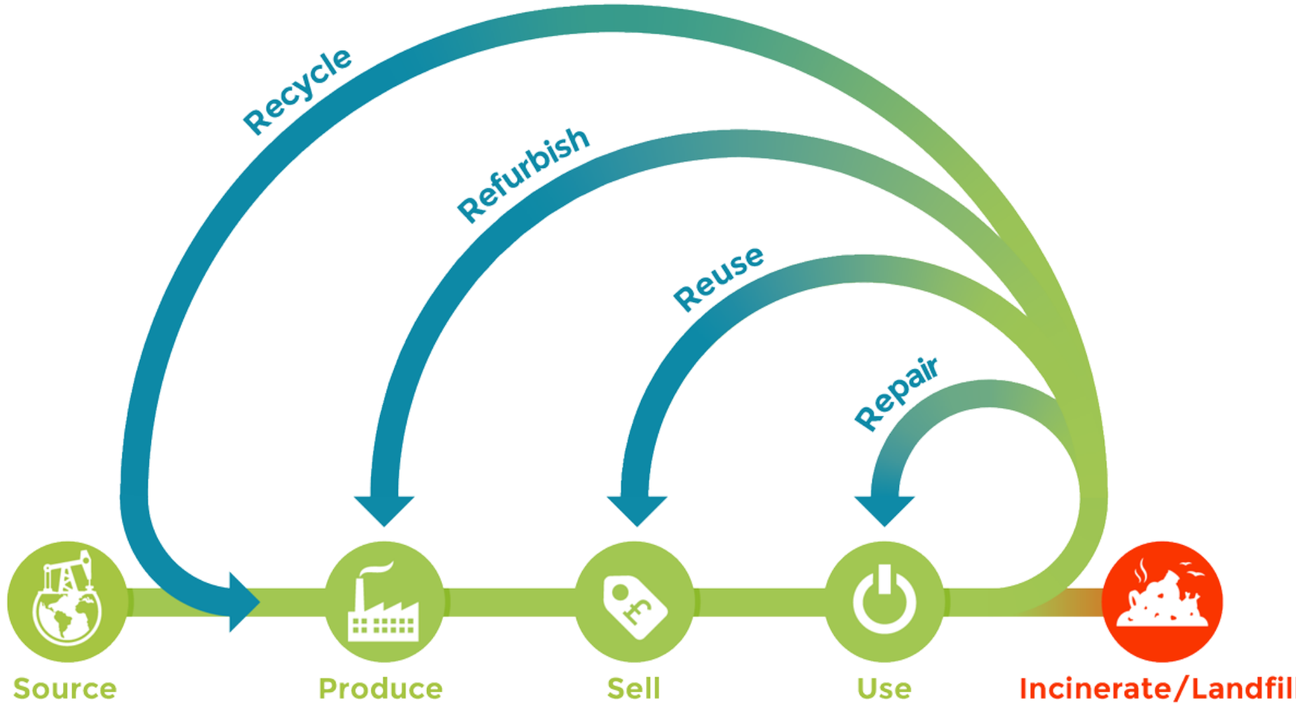
WHAT IS THE CIRCULAR ECONOMY?

The Circular Economy is a radical, alternative model for how we can manage our production system. It aims to promote socio-economic development without compromising the environment and ecosystem, while also preserving natural resources for present and future generations.

This concept offers new ways to ensure sustainability, improving efficiency in the use of resources. It calls for the minimisation of the amount of waste we generate and seeks to reintroduce such waste back into the productive cycle as a resource to be (re-)used, rather than simply disposing of it.



Circular economy

Source: “What is the Circular Economy?” Circular Tayside Website.

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THE LEVELS AT WHICH CIRCULAR ECONOMY MAY BE IMPLEMENTED

- Micro level: Microeconomic indicators describe the economic, environmental or social performance of a city, product or company. They place emphasis on the local level, businesses, and individual products. They support decisions concerning the implementation of policies and decisions in areas such as product policies, energy efficiency, and integrated waste management.

- Meso level: Mesoeconomic indicators describe the economic, environmental or social performance of a region, a product group or an industry. They emphasise industry, consumption activity, detection of waste materials, pollution sources, and opportunities for efficiency gains in specific sectors.

- Macro level: Macroeconomic indicators describe the characteristics of a country or larger region mostly in relation to interactions with the rest of the world through trade flows. They emphasise on material exchanges between the economy and the environment rather than on flows within the economy.

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SHORT COFFEE BREAK (5 MINUTES)

THE IMPORTANCE OF THE POLITICAL FRAMEWORK FOR THE TRANSITION TOWARDS A CIRCULAR ECONOMY

The political sphere plays a key role in the process of stimulating the transition towards a more circular economy. When politicians set policies which favor linear production and consumption models, these can then reinforce wasteful behaviors and make it difficult to transition to a circular economy. For example, policies such as tax reductions or subsidies can make it easier and more profitable to produce at enormous scale or to dispose of excess food rather than distributing it for re-use.

On the other hand, policy can also drive innovation through the creation of market for new products and services and focusing on circular sustainability (Vinnova, 2019).

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MAIN EU POLICIES FOR PROMOTING THE CIRCULAR ECONOMY

- The Circular Economy Action Plan (2015):

It was a “first step to a long-term commitment to establish a European circular economy” (European Commission’s “Circular Economy Action Plan” - United Nations Partnerships for SDGs platform, 2020). It was defined as a “political instrument with high replicability”, and “its focus on cooperation and comprehensive action, covering the entire product’s cycle, makes it suitable for different political and economic contexts.”

- The Circular Economy Action Plan (2020):

1. Based on the Eurobarometer survey published on March 2020 (European Commission 2020e);
2. Active involvement of citizens;
3. Empowers consumers while producing more sustainably;
4. Targets resource-demanding sectors such as electronics, packaging, plastics, construction, textiles, construction, food and water and nutrients;
5. Promotes the circularity of the entire life cycle of products (European Commission, 2020b);
6. Seeks to ensure that “the resources used are kept in the EU economy for as long as possible”

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MAIN EU POLICIES FOR PROMOTING THE CIRCULAR ECONOMY

- The European Green Deal (2019):

1. Its main goal is to make the EU climate neutral by 2050;
2. It focuses on the financing tools which are available, and on what investments are needed for this transition to happen (European Commission, 2020c);
3. It provides a roadmap with actions "to boost the efficient use of resources by moving to a clean, circular economy and stop climate change, revert biodiversity loss and cut pollution" (European Commission, 2020d);
4. It has an overall budget of at least €100 billion over the period 2021-2027.

It has key policy areas topics, such as:

1. "From farm to fork", which seeks to ensure more sustainable food systems;
2. "Clean energy", which envisions opportunities for alternative, cleaner and renewable sources of energy;
3. "Sustainable industry", which targets more sustainable, environmentally-respectful production cycles;
4. "Building and renovation", which acknowledges the need for a cleaner construction sector;
5. "Eliminating pollution", which seeks to efficiently cut pollution (European Commission, 2020c).

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MAIN INCENTIVES FOR THE CIRCULAR ECONOMY IN SWEDEN

Think about it:

- Historically, the Nordic countries have been characterized by their high **environmental awareness and technical innovation initiatives**.
- Sweden is one of the countries that is particularly exploring its role as a **consistent green leadership**.
- People in the Nordic countries seem to be generally r**eceptive to shifts in the tax paradigm** towards increasing the taxation on physical goods and decreasing it on services and labor (SB Insight, 2019);
- Over **99% of the Swedish household waste** is recycled (Nederlandwereldwijd.nl, 2018).

What has Sweden been doing?

- Fossil-Free Sweden: aims at making Sweden one of the world's first fossil-free welfare states.
- Increased budget for investment in renewable and sustainable energy sources
- Delegation for Circular Economy: Appointed by the government in 2017 "to investigate and put forward policy recommendations" (SB Insight, 2019) to stimulate the transition to a resource-efficient and CE
- Reduction of VAT reliefs on repairs of bicycles, clothing, textiles and leather goods

What is missing?

- Countering high private consumption of new goods
- Establishing parameters to measure the circularity of a product and/or initiative in a standardized manner

Sources: U-Eco Project; Vinnova, 2019; SB Insight, 2019; Nederlandwereldwijd.nl, 2018;

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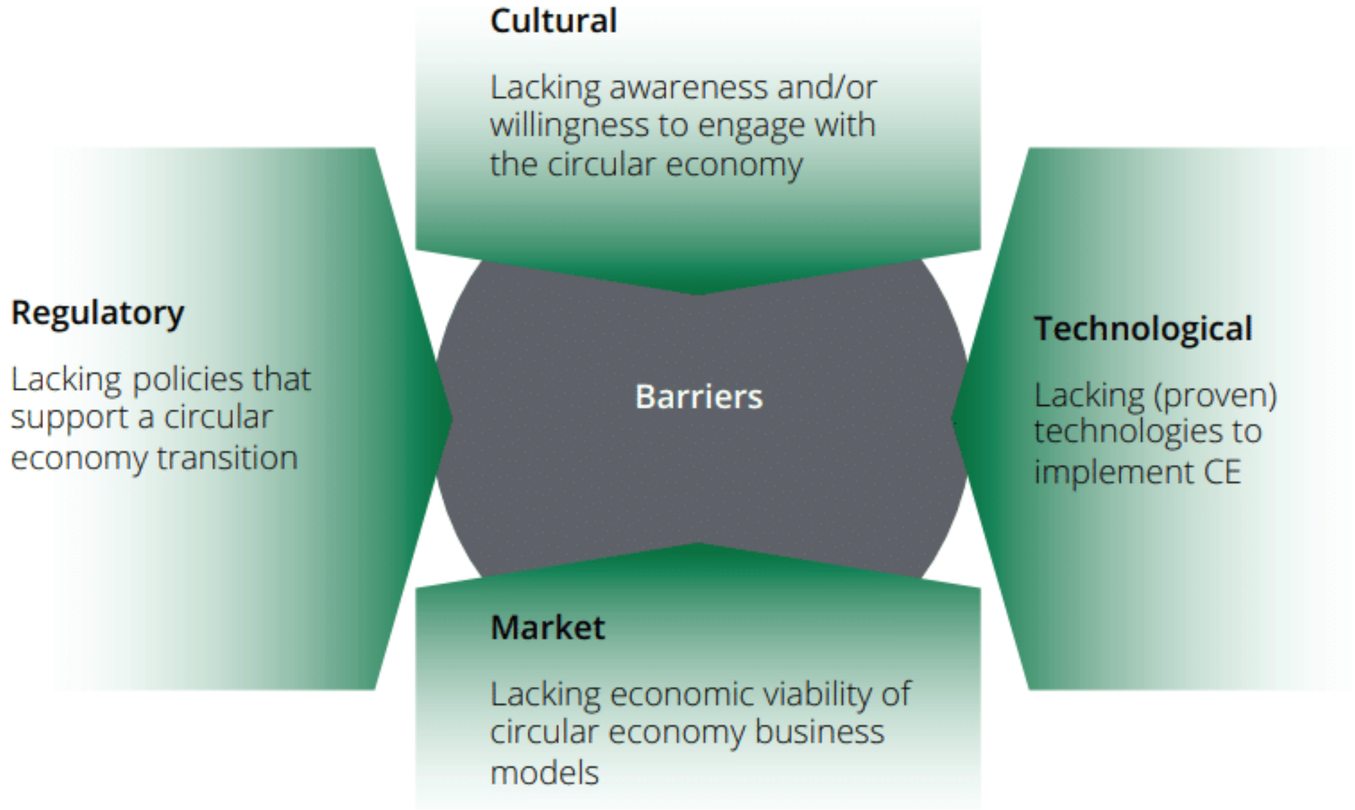
THE OBSTACLES TO THE ADOPTION OF A CIRCULAR ECONOMY



Source: Types of Circular Economy Barriers (van Eijk, 2015).

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THE OBSTACLES TO THE ADOPTION OF A CIRCULAR ECONOMY

Technological

Related to the need for major changes in products and production and to questions about whether they would work and what their cost would be. There is also a concern about quality, whether redesign for better circularity or recycled material content would affect the perceived quality of the product.

Source: U-Eco Project.

Market/Financial

There is uncertainty about how, through innovation and development work, revenue can be generated and about the viability of circular business models. In addition, other more concrete financial barriers are related to the perception that a transition towards a Circular Economy would imply changes throughout the organisation and would influence all departments from the business model to technical aspects, relationship with customers, distributors, suppliers, production systems, etc. These changes take time and investment from the financial logic, usually focused on quick return on investment and cost reduction, makes it difficult to convince owners to change their long-term strategies.

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THE OBSTACLES TO THE ADOPTION OF A CIRCULAR ECONOMY

Cultural

As the Circular Economy is not yet established as a model in the industry, we can find that for a large majority, this concept is not familiar, and they have a limited understanding of its meaning. In general, there is a positive predisposition towards it, although greater knowledge could give different perceptions and attitudes. Clearly, the lack of understanding of Circular Economy and its opportunities imply a cultural and organisational barrier to an evolutionary change towards circularity. Another attitude-related barrier, possibly the most prominent, is the widespread aversion to risk and to taking small steps for organisational development. An inertia can be identified in considering new business models or sustainability as strategic issues as well as a dominant product/service orientation.

Sources: U-Eco Project; Technopolis Group, n.d..

Regulatory

These barriers include:

1. The lack of definitions and the occurrence of gaps in legislation
2. Unclear definitions of targets in legislation
3. Outdated or irrational definitions for the numerical limits in regulations
4. Lagging or incomplete implementation or enforcement of legislation
5. Different and conflicting national implementations of legislation
6. Regulations that conflict with each other because they represent conflicting values

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OTHER OBSTACLES...

Integration between functions

The idea exists in some corners that sustainability issues are a matter for a specific department within the company. There are also those who claim that Circular Economy is too complex to be addressed by a single department and that it is still uncertain how this responsibility is to be managed within organisations. Furthermore, it can be observed that the degree of integration between the different areas of many companies is low. This lack of integration coupled with hierarchical integration is another clear barrier to the transition to a Circular Economy.

Value chain structure

Other barriers have also been found in relation to the role that companies play according to their value chains, as well as a dominant logic of how to transmit it to the market. In the case of companies that, for example, sell their products through marketers, they lose control of their products at the point of sale and this can be identified as a barrier in the distribution systems.

Source: U-Eco Project.

SHORT COFFEE BREAK (10 MINUTES)

WORLD CAFE

POLITICAL FRAMEWORK FOR THE TRANSITION INTO THE CIRCULAR ECONOMY DISCUSSION

SHORT COFFEE BREAK (10 MINUTES)

INTRODUCING THE CIRCULAR ECONOMY PRACTICES

What are Circular Practices?

- Actions that contribute to rethinking the economy and building other ways of doing and making things.
- Simple actions that become powerful strategies to break the dynamics of "buy-use-throw away" typical in the linear economy.
- They are collected in frameworks that aim "to achieve less resource and material consumption in product chains and make the economy more circular" (Potting, Hekkert, Worrell and Hanemaaijer, 2017). Different R frameworks exist: 3R, 4R, 6R, and 10R.

COULD YOU GUESS THE 10 Rs?

Write them on the chat!

Sources: U-Eco Project; Potting, Hekkert, Worrell and Hanemaaijer, 2017; Kirchherr, Reike and Hekkert, 2017

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INTRODUCING THE CIRCULAR ECONOMY PRACTICES

- The **10R framework** has practices ranging from ones with a low circular effect to ones with a high level of circularity, as follows: '**Recover, recycle, repurpose, remanufacture, refurbish, repair, reuse, reduce, rethink and refuse**' (Kirchherr, Reike and Hekkert, 2017; Potting, Hekkert, Worrell and Hanemaaijer, 2017).

Sources: U-Eco Project; Potting, Hekkert, Worrell and Hanemaaijer, 2017; Kirchherr, Reike and Hekkert, 2017

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10 CIRCULAR PRACTICES

- **Recover:** converts waste into resources and transforms them into new products/substances (such as compost or energy, heat, fuel).
- **Recycle:** allows materials and resources to return back to the economy and to be used again, composed of: Collection, separation, and processing (mechanical and chemical) of waste.
- **Repurpose:** the use of a product or material for a different function than it was originally produced for. Repurpose can also be referred to as both downcycling and upcycling (Circle Economy and MVO Nederland, 2015).
- **Remanufacture and Refurbish:** promote waste limitation and resource conservation through the re-use of products and materials that are recovered.
- **Repair:** the first and most preferred method in a circular economy (Circular Repair, n.d.). The ultimate purpose of this practice is to maintain the utility of the products for as long as possible while only replacing the worn and broken components.

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10 CIRCULAR PRACTICES

- **Reuse:** covers operations where end-of-life products are put back into service, essentially in the same form, with or without repair or remediation." (Cole, Gnanapragasam and Cooper, 2017).
- **Reduce:** implies a direct and concrete decrease of all those practices and activities that are unsustainable at its core, negatively impacting the environmental and social sphere.
- **Rethink:** can be applied to any sector and practice; it involves a change in how practices are executed in such a way that they are more circular.
- **Refuse:** The most circular option then is to refuse to use unsustainable things, completing cutting them out of the production chain. This is helpful in that it reduces the market for that thing, making it less profitable for those who produce it and in the end making them decide not to produce it any more.

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REFLECTION

01

What are the Main Challenges, Opportunities and Benefits of Circular Economy Practices?

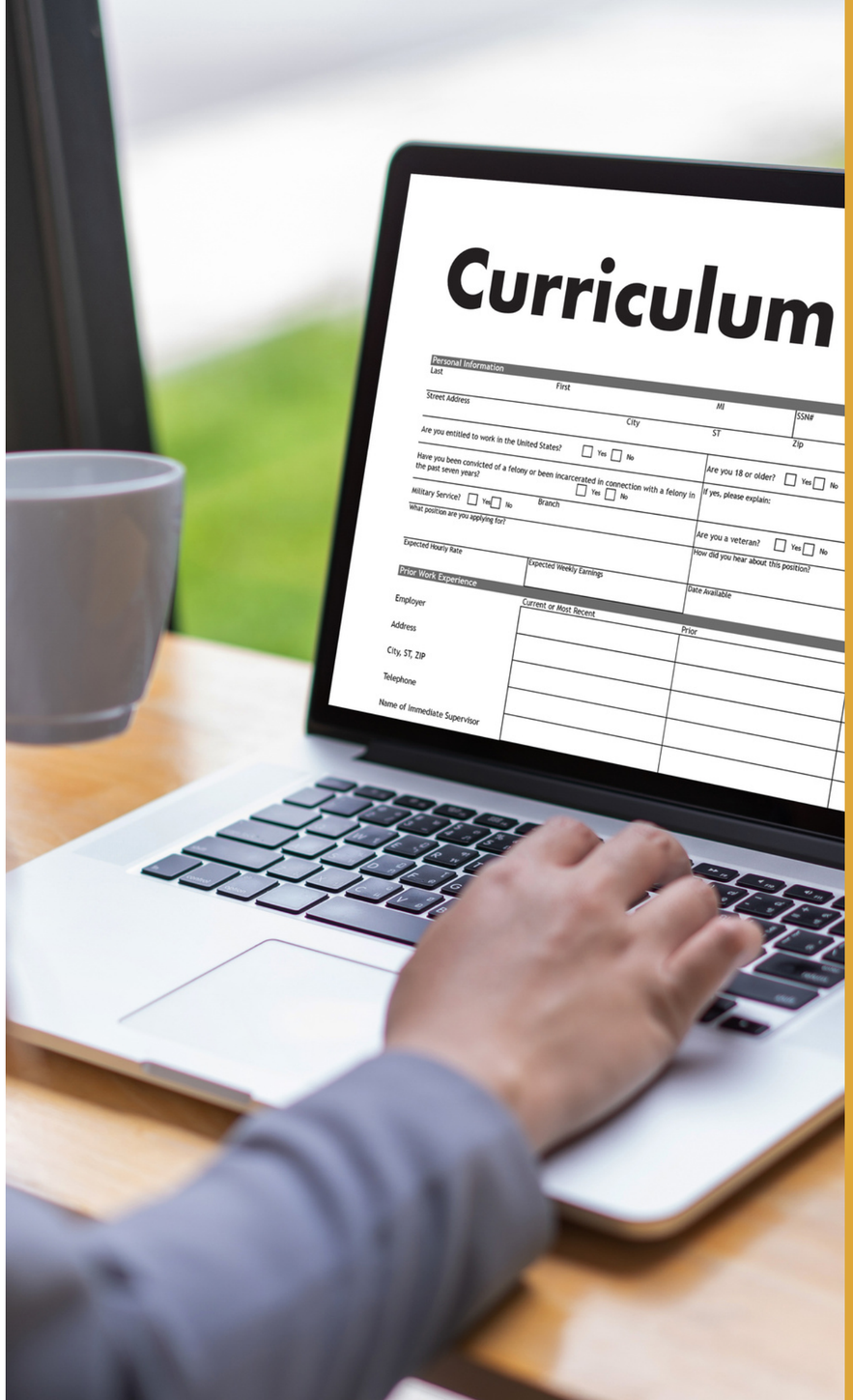
02

What is the Necessity and Reasoning for Circular Economy Practices?

QUIZ

03

Questions to test your knowledge
+ feedback form

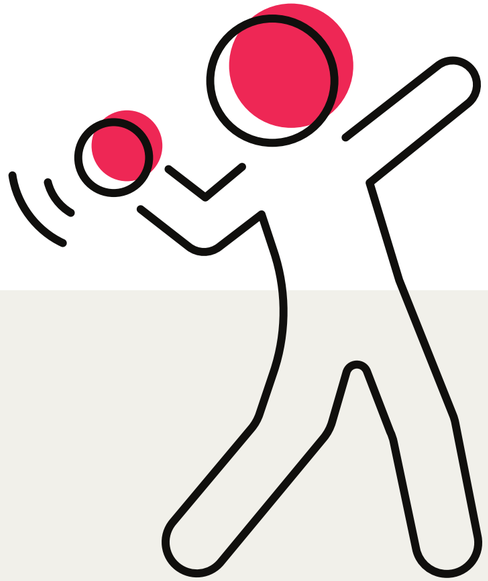


UPSKILLING YOUR CV

SESSION 3

03

ICE-BREAKER



THE VIRTUAL FAST BALL!

1.TAKE A BALL! (or something similar)
2. When it's your turn, stand up!
3. Quickly state the following:
   - Name
   - Favourite animal
4. When you are done, pass your virtual ball to another person who has not spoken yet as fast as possible!

INTRODUCING THE DISRUPT FRAMEWORK

D **Design for the future**

circular equipment engineers

I **Incorporate digital technology**

information managers

S **Sustain & Preserve**

repair technicians

R **Rethink your business model**

demand planners

U **Use waste as a resourse**

process operators

P **Prioritize regenerative resources**

agronomic advisors

T **Team up to create joint value**

procurement professionals

EXPECTED LABOUR MARKET CHANGES DERIVING FROM THE CIRCULAR ECONOMY

1 WHAT JOBS, AREAS AND CAREER PATHS CAN BE EXPECTED TO GROW?

- **Core circular jobs:** these ensure that raw material cycles are closed and thus form the core of the circular economy.
- **Enabling Circular Jobs:** These jobs enable the acceleration and upscaling of core circular activities and thus form the supporting shell of the circular economy.
- **Indirect Circular Jobs:** These jobs provide services to the primary circular activities above and thus form the activities that indirectly uphold the circular economy.

1 WHAT JOBS, AREAS AND CAREER PATHS CAN BE EXPECTED TO GROW?

5 Areas in particular can be expected to grow within a Circular Economy context

BIOMASSAND BIO-BASED PRODUCTS (AGRICULTURE, FOOD, AND ENERGY)

WATER TREATMENT ANDREUSE

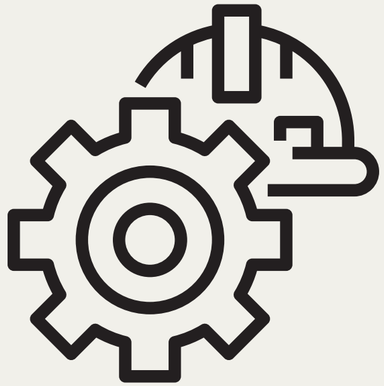
PLASTICS, SECONDARY MATERIALS, AND INNOVATION

1 WHAT JOBS, AREAS AND CAREER PATHS CAN BE EXPECTED TO GROW?

5 Areas in particular can be expected to grow within a Circular Economy context

DIGITALIZATION, SHARING PLATFORMS, ANDSERVICES (PROUCT AS A SERVICE)

CONSTRUCTION AND DEMOLITION



EXPECTED LABOUR MARKET CHANGES DERIVING FROM THE CIRCULAR ECONOMY

2 HOW CAN WE SUPPORT THESE CHANGES IN A SUSTAINABLE WAY?

Skills to power the circular economy

1.Identify the needed skills.

2.Create a policy environment that promotes circular businesses and skills.

3.Open up opportunities for continuous learning and development

Improve quality of work in the circular economy

1.Develop frameworks for the quality of work in the circular economy

2.Strengthen legal basis and social dialgue between actors in circular economic sectors.

3.Promote the social value of jobs in the industry.

INTRODUCTION: EXPECTED LABOUR MARKET CHANGES DERIVING FROM THE CIRCULAR ECONOMY

3 STRUCTURAL BARRIERS FOR INCLUSIVE EMPLOYMENT?

- **Global value chains produce ripple effects:** Globalization causes global north businesses to take over global south workforce & increase vulnerability, criminality, illegal dumping.
- **Structural barriers to employment**: social exclusion of NEET people, underemployment of youth, poverty, lack of social welfare policies in some countries, discrimination.
- **Technology as both an inclusive & exclusive vehicle:** Global North vs. Global South differences in access to technology, rural vs. urban divides may affect labour market developments and equal access to job opportunities & fast market changes.

NEXT STEPS & SOLUTIONS

01 EDUCATION, RESEARCH & LEARNING OPPORTUNITIES

02 DIALOGUE BETWEEN ACTORS

03 RAISING AWARENEES & PROMOTING SOCIO-ECONOMIC INCLUSION

REFLECTION QUESTIONS:

1. HOW DO YOU SEE YOURSELF FITTING IN THIS?

2. HOW CAN THE TRANSITION TOWARDS THE CIRCULAR ECONOMY PROMOTE INCLUSION?

SHORT COFFEE BREAK (10 MINUTES)

UPSKILLING YOUR CV WITH KNOWLEDGE OF CIRCULAR ECONOMY AND DEMANDED SKILLS

"A CIRCULAR ECONOMY JOB IS AN EMPLOYMENT ACTIVITY WHICH SUPPORTS THE PRODUCTIVE AND SAFE MOVEMENT OF MATERIALS THROUGH CONTINUOUS CYCLES DRIVEN BY RENEWABLE ENERGY SO EVERYTHING BECOMES A RESOURCE FOR SOMETHING ELSE. WASTE IS NOT PART OF THIS DEFINITION."

- JOYITA GHOSE, SHILPI KAPUR (THE ENERGY AND RESOURCES INSTITUTE (TERI), 2019 -

RESOURCE EFFICIENCY: THE SKILLS NEEDED

CORE AND ENABLING CIRCULAR ACTIVITIES

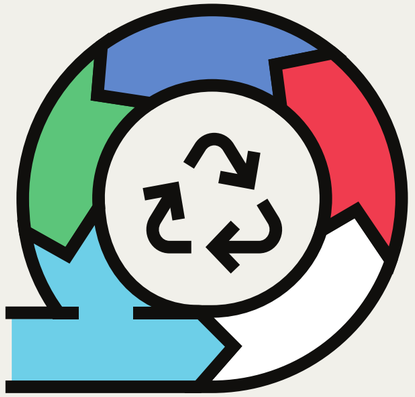
Source: Burger *et al*, 2019

Core Activities

- Preserve and extend what's already made
- Prioritise regenerative resources
- Use waste as a resource
- Rethink the business model

Enabling Activities

- Collaborate to create joint value
- Design for the future
- Incorporate digital technology



WHAT SKILLS ARE NEEDED IN A CIRCULAR ECONOMY CONTEXT?

The skills gap and skills requirements for a resource efficient and circular economy transition:

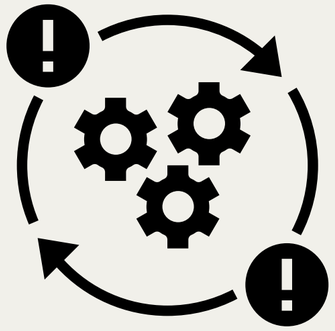
- General management & soft skills
- 'Broad' or Transversal skills (e.g., digital and green literacy and problem solving)
- Technical knowledge and industry-specific skills, related to specific functionalities or disciplines

"Circular jobs will emphasize skills such as product repair and maintenance or innovating the product design process to improve longevity" (UNESCO, n.d.)

6 TYPES OF GENERAL SKILLS TO POWER THE CIRCULAR ECONOMY

1.Basic Skills

Developed capacities that facilitate learning or the more rapid acquisition of knowledge.



2.Complex problem-solving skills

Developed capacities used to solve novel, ill-defined problems in complex, real-world settings

3.Resource Management Skills

Developed capacities used to allocate resources efficiently

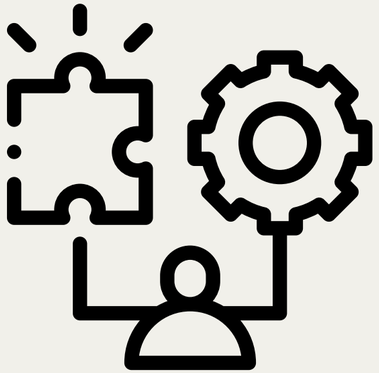
Source: U-Eco project market research report

6 TYPES OF SKILLS TO POWER THE CIRCULAR ECONOMY

Source: U-Eco project market research report
O Net Initiative
2017 report: “CIRCULAR JOBS Understanding Employment in the Circular Economy in the Netherlands”.

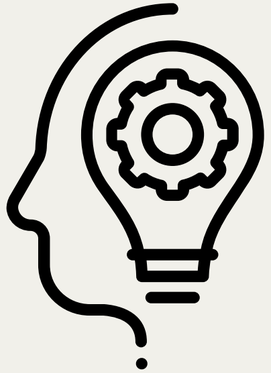
4.Social Skills

Developed capacities used to work with people to achieve goals.



5.System Skills

Developed capacities used to understand, monitor, and improve sociotechnical systems



6.Technical Skills

Developed capacities used to design, set-up, operate, and correct malfunctions involving application of machines or technological systems

LET'S MAKE PRACTICAL EXAMPLES!

Circular skills can be very general, and the diversity of specific jobs and sectors/industries in which they can apply varies greatly. So, let's make some practical examples of the skills required for specific professions/profiles named earlier in a circular economy sector!

Can you guess the skills needed for each example?

Jamboard time!

SPECIFIC SKILLS RELATED TO CIRCULAR JOB SECTORS

01

Jobs in "Prioritise Regenerative Resources"

Guess the needed skills!

02

Jobs in "Preserve & Repair of products' lifetime

Guess the needed skills!

03

Jobs in "Use Waste as a resource"

Guess the needed skills!

SPECIFIC SKILLS RELATED TO CIRCULAR JOB SECTORS

01

Jobs in "Prioritise Rgenerative Resources"

Skills needed: problem-solving, resource management, systems & technical knowledge.

02

Jobs in "Preserve & Repair of products' lifetime

Skills needed: resource management & systems.

03

Jobs in "Use Waste as a resource"

Skills needed: technical skills of the industry.

SPECIFIC SKILLS RELATED TO CIRCULAR JOB SECTORS

04

Jobs in "Rethink the Business model":

Guess the needed skills!

05

Jobs in "Collaborate to create joint value":

Guess the needed skills!

06

Jobs in "Design for the future":

Guess the needed skills!

SPECIFIC SKILLS RELATED TO CIRCULAR JOB SECTORS

04

Jobs in "Rethink the Business model":

Skills needed: resource management & technical skills.

05

Jobs in "Collaborate to create joint value":

Skills needed: problem-solving, resource management, systems, teechnical.

06

Jobs in "Design for the future":

Skills needed: social, technical, systems, resource management, problem-solving.

SOME PRACTICAL EXAMPLES OF CIRCULAR ECONOMY OCCUPATIONS

Source: Burger *et al*, 2019

CE element	Typical Occupations
Prioritise Regenerative Resources	Hoist and winch operators
	Wind turbine service technicians
	Power plant operators
Preserve and Extend What's Already Made	Upholsterers
	Automotive and watercraft service attendants
	Cleaners of vehicles and equipment
	Shoe and leather workers and repairers
	Painters
Use Waste as a Resource	Water and wastewater treatment plant operators
	Environmental engineering technicians
	Hazardous materials removal workers
	Plant and system operators
	Meter readers, utilities
	Weighers, measurers, checkers, and samplers
	Refuse and recyclable material collectors
	Septic tank servicers and sewer pipe cleaners
Rethink the Business Model	Counter and rental clerks
	Audio and video equipment technicians
	Correspondence clerks
	Mobile heavy equipment mechanics
Collaborate to Create Joint Value	Labor relations specialists
	Public relations specialists
	Conservation scientists
	Sport officials
	Recreational protective service workers
Design for the Future	Construction and building inspectors
	Interior designers
	Architectural and engineering managers
Incorporate Digital Technology	Computer and systems managers
	Cellular, and tower equipment installers and repairs
	Telecommunications line installers and repairers
	Telecommunications equipment installers and repairers
	Computer hardware engineers

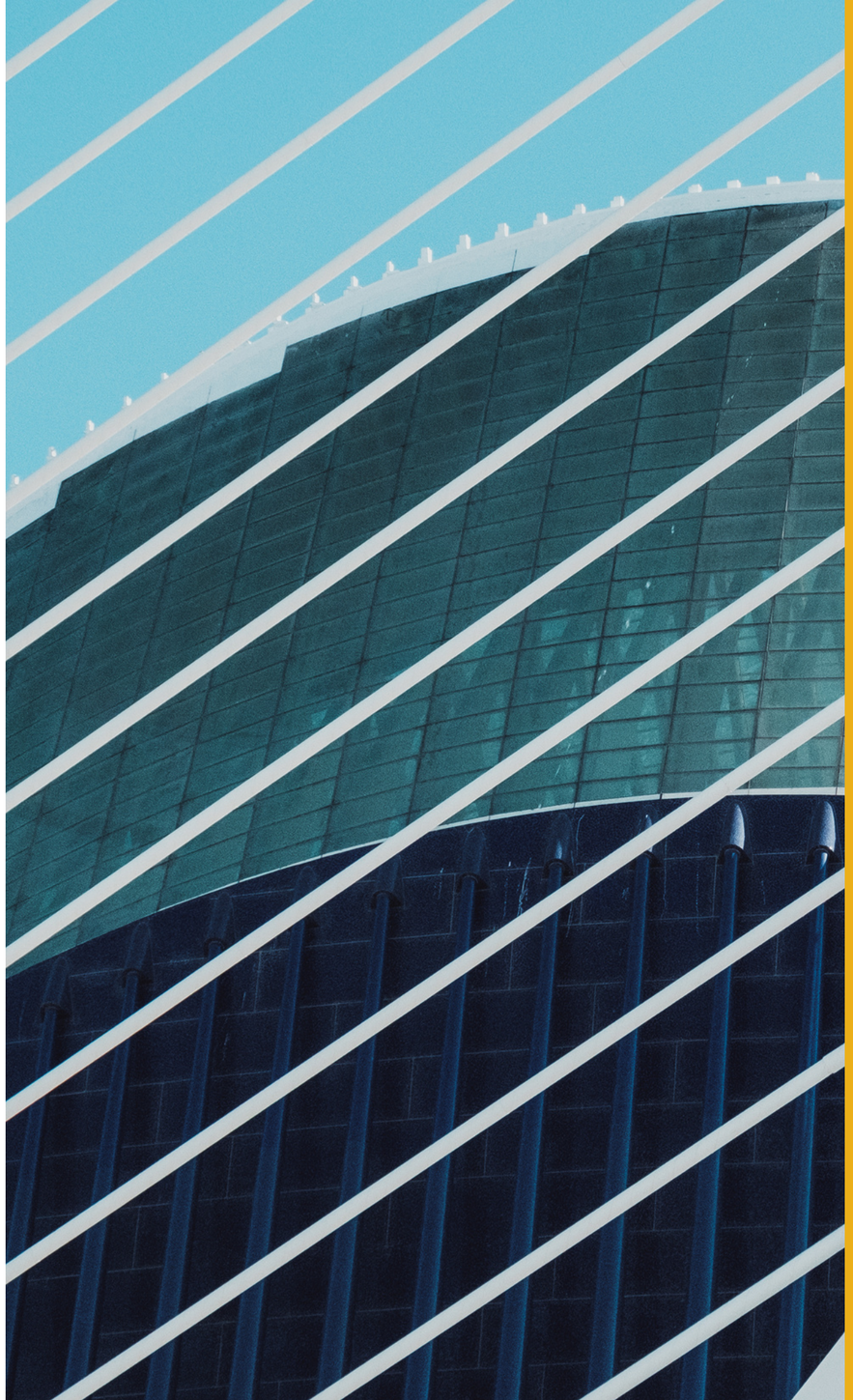
SHORT COFFEE BREAK (10 MINUTES)

RESEARCH EXERCISE

Take 20 minutes to research possible educational opportunities within the circular economy context.

- Remember: these should be training courses, educational programs that you believe would be beneficial for upskilling your CV.
- After this, please share what you found with other participants.

QUIZ + FEEDBACK TIME!

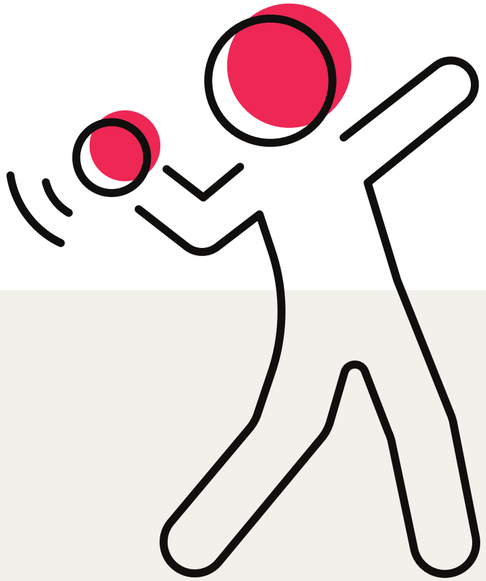


SESSION 4

UPSKILLING YOUR BUSINESS

04

ICE-BREAKER



THE VIRTUAL FAST BALL!

1.TAKE A BALL! (or something similar)
2. When it's your turn, stand up!
3. Quickly state the following:
   - Name
   - Favourite place
4. When you are done, pass your virtual ball to another person who has not spoken yet as fast as possible!

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SUSTAINABLE DESIGN STRATEGIES (SDS)

What are they?

Instruments that “enable sustainable development challenges to be tackled in a coherent and dynamic way” (OECD, 2001). The idea is that we try to anticipate our effect on the environment whilst designing products and services. In that way, they can be more sustainable from their very conception.

How do they look in practice? (examples)

- **Life Cycle Assessment (LCA):** “a technique for assessing the environmental aspects associated with a product over its life cycle” (Muralikrishna and Manickam, 2017);
- **Eco-design:** “explores opportunities to reduce environmental impacts throughout entire product life cycles by improved product design (whether these products are goods, services, or processes)” (Andrae, Xia, Zhang and Tang, 2016).

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CIRCULAR ECONOMY PRINCIPLES

SOURCE: BEE SMART CITY WEBSITE. "THE CIRCULAR ECONOMY: VISION, PROBLEMS AND SMART CITY SOLUTIONS" ARTICLE

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CIRCULAR ECONOMY PRINCIPLES

1. **Design in waste prevention:** Products and services can be conceived and designed in a way that radically reduces waste creation through better integration with biological and technological material cycles.
2. **Building resilience through diversity:** Product resilience proposes to reduce obsolescence and drastically increase functionality and usability.
3. **Use of renewable energies:** use only renewable resources, because of their virtually unlimited availability, to drastically reduce the negative impact on the environment (greenhouse gas emissions, toxic discharges into rivers and seas, etc.) and human health.
4. **Waste is food:** waste is no longer rejected, but can be transformed into a very important resource of the biological and technical cycles, becoming the basis for production in the links of the value chain.

5. System thinking and local thinking: Where the different parts relate to each other and to the system, at different spatio-temporal scales and in relationships with multiple variables. In local thinking, the dynamic relationship of proximity can provide the guidelines for groups of people to make the best use of resources and, at the same time, to foster and strengthen local creative and innovative capacity. For system thinking, different stakeholders participate in the same way to materialize the Circular Economy model.

6. Cascade thinking: It is based on the possibility of increasing the value of a raw or secondary material through the definition of its specific functions and trying to reintroduce it in a part of the life cycle of its same use or in that of other different uses.

7. Focusing on performance: Performance has to be synergistic and based on the creation of multiple benefits, including the creation of added values, jobs and the reduction of resource consumption. This would entail the reduction of negative impacts from natural and socio-economic systems.

CIRCULAR ECONOMY PRINCIPLES

CONSUMER BEHAVIOUR

What is it?

The study of consumers and the processes they use to choose, consume, and dispose of products and services, including consumers' emotional, mental (values and beliefs), and behavioral responses.

Why does it matter?

- It helps marketers understand what influences consumers' buying decisions.
- By understanding how consumers decide on a product, they can identify the products that are needed and the products that are obsolete.
- It also helps marketers decide how to present their products in a way that generates a maximum impact on consumers. Understanding consumer buying behavior is the key secret to reaching and engaging your clients and converting them to purchase from you.

What are the benefits?

A consumer behavior analysis should reveal:

- What consumers think and how they feel about various brands, products, etc;
- What influences consumers to choose between various options;
- How consumers' environment influences their behavior.

TYPES OF CONSUMER BEHAVIOUR

01 Complex buying behaviour (for expensive items requiring lots of thoughts).

02 Dissonance-reducing buying behaviour (when consumers worry, they will regret their choice).

03 Habitual buying behaviour (buying same product out of habit)

04 Variety seeking behaviour (out of curiosity).

WHAT AFFECTS CONSUMER BEHAVIOUR?

01 Marketing campaigns

02 Economic conditions

03 Personal preferences

04 Group influence

05 Purchasing power

CONSUMER BEHAVIOUR PATTERNS

1. Place of purchase: Most of the time, customers will divide their purchases between several stores even if all items are available in the same store, unless that's the only store they have access to.

2. Items purchased: Which items that were purchased and how much of each item was purchased. Necessity items can be bought in bulk while luxury items are more likely to be purchased less frequently and in small quantities.

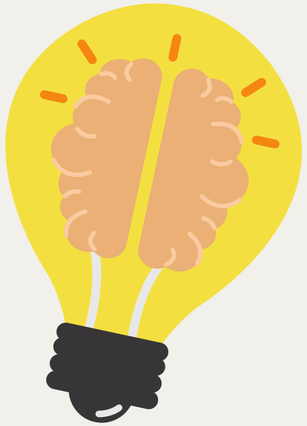
3. Time and frequency of purchase: Customers will go shopping and will expect service even during the oddest hours. It's the shop's responsibility to meet these demands by identifying a purchase pattern and match its service accordingly. Seasonal variations and regional differences must also be accounted for.

4. Method of purchase: A customer can either walk into a store and buy an item there or order and pay online via credit card or on delivery. The method of purchase can also induce more spending from the customer.

THE APPEAL OF GREEN PRODUCTS

Why do people buy eco-friendly products?

Jamboard brainstorming time!

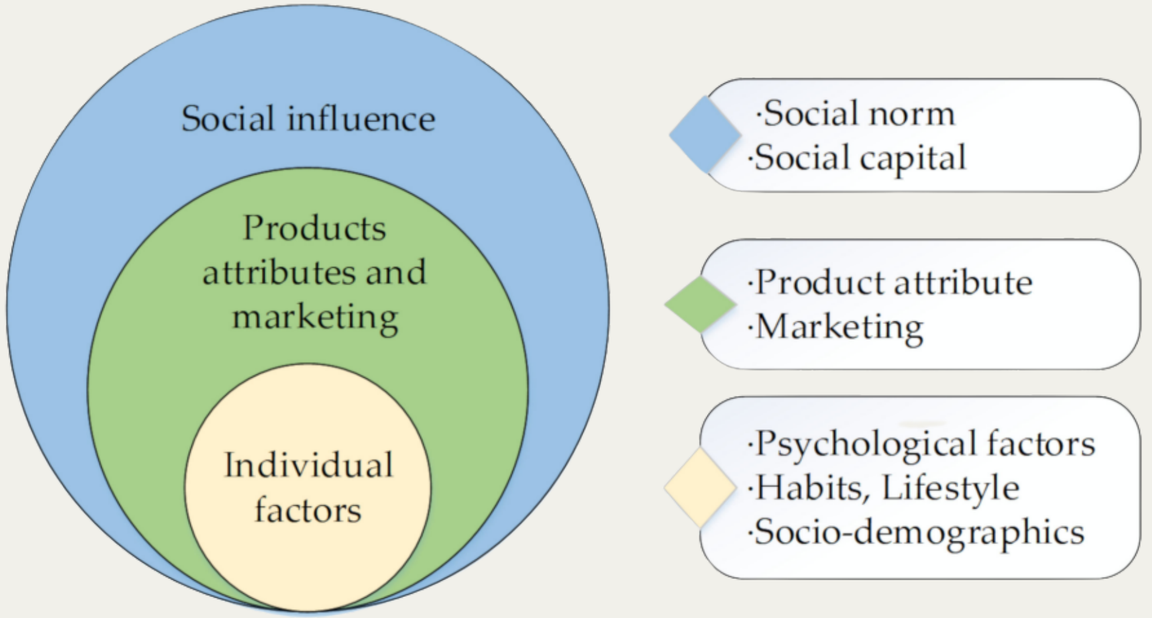


THE APPEAL OF GREEN PRODUCTS

Why do people buy eco-friendly products?

Green purchase is affected by different factors, from individual to contextual reasons.

- **Individual Factors:**
  - Psychological factors: Attitude, Awareness, Beliefs, Values, Norm, Perception
  - Habits, Experiences, Lifestyle
  - Socio-demographics (Education Level, Age, Gender, etc.)
- **Product Attributes and Values:**
  - Product attribute: Availability, Product quality, Packaging, Origin
  - Marketing: Eco-label, Message credibility, Promotion, Sales channels
- **Social Influence**
  - Social norm (Peer Influence, Culture, Organization)
  - Social Capital (media, place identity)

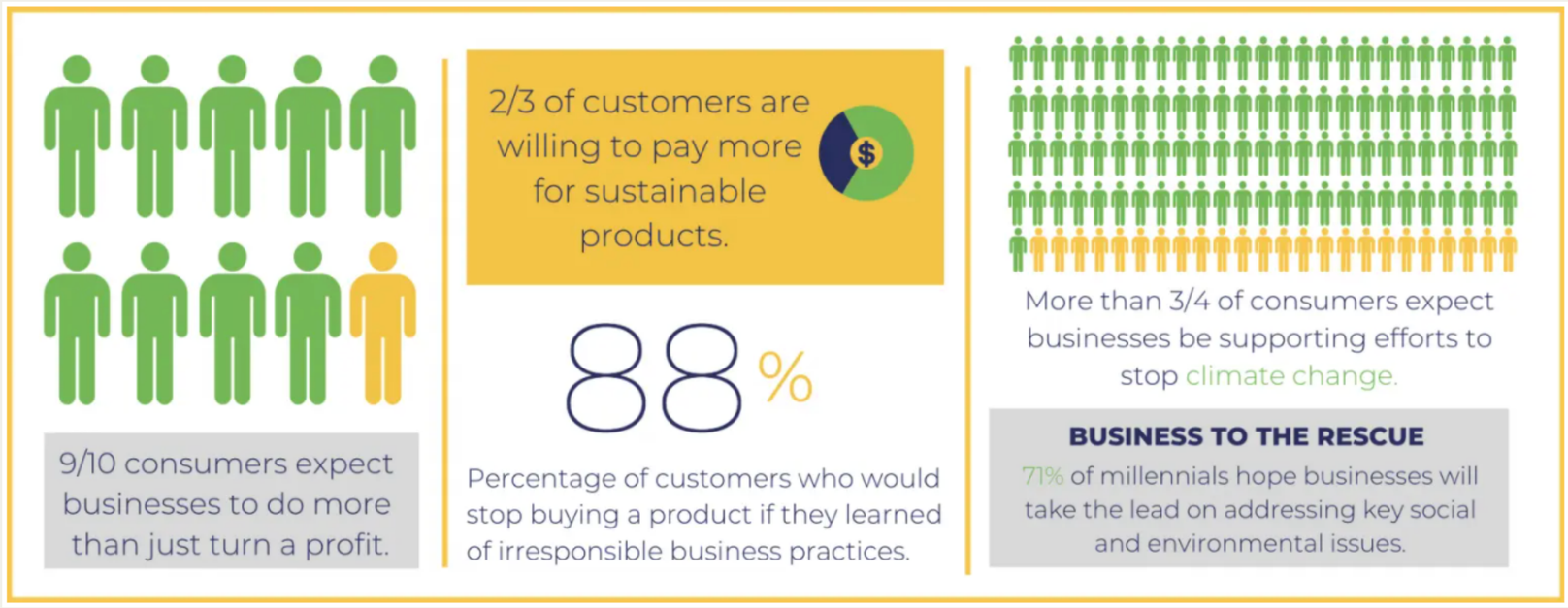


Zhang X, Dong F. Why Do Consumers Make Green Purchase Decisions? Insights from a Systematic Review. International Journal of Environmental Research and Public Health. 2020; 17(18):6607. https://doi.org/10.3390/ijerph17186607

THE APPEAL OF GREEN PRODUCTS

The appeal of green products can divided into two kinds:

1. **Intrinsic appeal:** tries to persuade consumers based on their sense of altruism and wanting to make the world a better place.
2. **Extrinsic appeal:** emphasises the personal benefit the consumer might enjoy from buying the product, for example the product being cheaper, saving them time, or making their life easier



Marketing, Economic, Psychological, and Contextual factors play a role!

A company can thus use 5 actions to support consumers to buy sustainably: *use social influence, shape good habits, leverage the domino effect, decide whether to talk to the heart or the brain, and favor experiences over ownership.*

Katherine White, David J. Hardisty, and Rishad Habib, 2019. https://hbr.org/2019/07/the-elusive-green-consumer
https://tontoton.com/consumers-are-willing-to-pay-more-for-sustainable-products-heres-why/

THE ROLE OF ENTREPRENEURSHIP IN THE TRANSITION TOWARDS A CIRCULAR ECONOMY

Entrepreneurship plays a significant role in our societies as one of the “major drivers of economic growth, of breakthrough innovations and job creation” (Heshmati, 2015).

Circular economy business models are rapidly growing. It is important to highlight that the transition to a Circular Economy will entail unprecedented changes in businesses at very different levels and new opportunities will appear. It will therefore be necessary for employers and employees to adopt new perspectives and skills.

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5 MAIN AREAS WITH ENTREPRENEURSHIP POTENTIAL

1. Recycling, repair and waste management:
Includes processes such as reverse logistics, resource and waste sorting, the cleaning of components, and the refurbishment of products; Repairing; Drivers; Managerial roles.

2. Design, engineering, and architecture:
This includes packaging, plastics, textiles and buildings. It mostly requires hard skills, but creativity also plays an essential role, as well as communication skills

3. Resources, food, and water management:
It entails circular and sustainable management of water as a resource, and food production.

4. IT and digitalisation: Integration and interpretation of virtual information management systems, software development for the tracking, supervision, and support; Repairing roles for electronic devices.

5. Management and public sector:
Decision-making roles: negotiations and organisation of the CE transition; bring dialogue with the citizens, and organise calls to find opportunities, e.g. managers, public procurers, civil servants, regional and national practitioners, advisors, and demand planners.

SHORT COFFEE BREAK (10 MINUTES)

CIRCULAR ECONOMY BUSINESS MODELS

Explanation and Examples:

- Dematerialisation
- Circular inputs
- Resource recovery
- Product life extension
- Product-as-a-service or product service system

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WHAT IS A BUSINESS MODEL?

A business model is a **strategy "for running a business, identifying where the money will come from, who the customers are, how they will be reached, etc**" (business-model noun, Oxford University Press, 2021).

- Not to be confused with a business plan, which broadly sketches the way you plan to make money, including: what your company plans to offer, what value it will bring to its costumers, and what advantage it will enjoy over its competitors.

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EXAMPLES OF CIRCULR BUSINESS MODELS

Dematerialisation:

This refers to cases where the amount of resources used in producing a product or providing a service is reduced. This could include replacing one material used in making a product with another one which works more efficiently and is more easily found: for example, replacing old (incandescent) lamps with energy-saving ones.

Circular inputs:

Inputs are, quite literally, what you need to put in in order to get a product out at the end of the day. One way that companies can make their business model more circular is by including circular inputs: for example, materials which can be recycled rather than materials which can only be used once.

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EXAMPLES OF BUSINESS MODELS

Resource recovery:

This means that you avoid waste of resources in what your company does by making sure that you recover that waste and use it. An example of this was brought up earlier in the course with the example of companies capturing grey water and reusing it for flushing the toilets. In that way the companies reduce the amount of water they use by using a lot of it twice.

Product life extension:

As the name says, this circular aspect of business models involves extending the life of your products. A product that is used for longer before needing to be disposed of is appealing to consumers because it will cost them less money over time. It is also circular because buying things less often means less resources are used. A good example of this is the way many clothes shops are now offering cheap or free repair services for their clothes. The clothes can then be worn for longer.

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EXAMPLES OF BUSINESS MODELS

Product-as-a-service or product service system:

In this case, companies can allow their customers to pay a regular subscription fee for a number of items of clothes (staying with the example of clothes shops).

The customer then does not buy the clothes but the right to wear them. If this includes the ability to swap that product for another one (for example swapping a thin blue jumper for a warmer green one), then customers may do that instead of repeatedly buying and amassing more and more clothes.

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BUSINESS STRATEGIES AND TECHNOLOGIES

- Packaging
- The product life cycle
- The supply chain

PACKAGING

With the continuing rise of e-commerce, the amount of materials used for packaging is growing all the time (for transporting and delivering products). Making the packaging used more circular can drastically reduce the environmental impact of a company. One example of this is using already-recycled cardboard for their packaging. Others in turn are replacing plastic with more sustainable alternatives. For example, substituting plastic bubble wrap or polystyrene for shock absorbers made from cardboard.

Three focus areas of the European Commission in reviewing its own directives, such as the Directive on Packaging and Packaging Waste are:

- Reducing (over) packaging and packaging waste;
- Driving design for re-use and recyclability of packaging;
- Considering reducing the complexity of packaging materials.

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THE PRODUCT LIFE CYCLE

All products are at one point new, and eventually become older and are superceded by newer and more improved products.

The product life cycle is normally split up into 4 parts:

1. Introduction phase. When a product is new it faces a number of challenges: it is not well-known to the public, it needs a lot of marketing, it cannot be produced in large numbers, production costs more money due to this smaller volume. In this stage consumers have to be convinced to buy the product.

2. Growth phase. In this phase the product, if successful, begins to become established, widely used, and well known among the public. It also becomes cheaper to manufacture it in large numbers. At this stage it becomes more attractive for different companies to start making and selling it.

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THE PRODUCT LIFE CYCLE

3. Maturity phase. After becoming established, the market will become mostly saturated with the product. Many companies will start trying to change it slightly to make it more attractive to certain groups in society.

4. Decline phase. At some point, a product will lose favour with consumers and its sales will shrink. This may be because it is no longer necessary as it has been replaced by something better. For example, fax machines have been mostly replaced by scanners and email.

Circular business models can be especially attractive when applied to products which are already in t**he growth or maturity stage** of the product life cycle, as being able to market a product as more green and sustainable than its competitors may offer the chance to win the market share of your less sustainable competitors.

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THE SUPPLY CHAIN

A supply chain is everything that is involved in getting your product to your customer.

Take for instance a potato and its supplly chain: They are harvested by the farmer, washed in a vegetable-washing facility, packed in a packing facility, stored until ready for sale to a supermarket chain, sent to the warehouse, and finally sent on to a particular shop which needs to stock up on potatoes. The environmental impact of that potato includes not just what the farmer and the supermarket do, but what everyone in between does.

Managing your company's supply chain well can have major positive impacts on the environment. For example, simply making sure that your product sits nicely into its packaging without lots of unnecessary extra space decreases the amount of space it will take up in a truck or ship. So our decisions on our supply chains also have a huge impact on how sustainable we are.

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SHORT COFFEE BREAK (10 MINUTES)

CASE DISCUSSION

01

Let's identify the circular aspect in each of the business models in the case studies!

1. Divide yourselves into pairs or groups of three people.
2. You'll be given one case study each to read, on which you'll then reflect on the circular aspects. (12min)
3. Once you have discussed the main circular aspects you have identified in your case study, you will present them to the whole group. (4min per group)
4. During the presentations, we will compare and comment on each others' findings.

QUIZ 02

Questions to test your knowledge + feedback

Co-funded by the
Erasmus+ Programme
of the European Union

THANK YOU!

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The European Commission support for the production of this publication does not constitute endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein. This project is co-funded by the European Commission through the Erasmus+ Programme under the call KA204 - Strategic Partnerships for adult education. Project Code: 2020-1-SE01-KA204-077803.

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2020-1-SE01-KA204-077803

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