GROWING GREEN

CIRCULARITY IN VET

GROWING GREEN

MANUAL FOR TEACHERS

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INTRODUCTION

Incorporating the principles of the green economy into Vocational Education and Training (VET) curricula is crucial for preparing the workforce of tomorrow. As the world transitions towards more sustainable practices, VET schools in the European Union play a pivotal role in equipping students with the skills and knowledge necessary to thrive in a rapidly evolving job market. By integrating topics such as green business, sustainable development, and circular economy principles into their programs, VET schools can ensure that graduates are not only well-prepared for the demands of the green economy but also positioned to drive innovation and positive change within their respective industries. Embracing sustainability in VET education not only aligns with the EU's commitment to environmental stewardship but also empowers students to become agents of sustainable development, contributing to a greener, more resilient future for Europe and beyond.

This manual serves as a comprehensive guide to navigating the complexities and opportunities of the green economy, empowering individuals, and organizations to embrace sustainability and drive positive change.

Chapter 1: Green Economy: Motivation

We begin by delving into the essence of entrepreneurship and the green economy, exploring their pivotal roles in driving innovation and sustainability. From unraveling the concept of entrepreneurship to scrutinizing the principles of the green economy and circular economy, this chapter sets the stage for a holistic understanding of sustainable practices.

Chapter 2: Green Economy: Challenge

Confronting the challenges and opportunities inherent in the green economy, Chapter 2 focuses on green business and innovation. Through reflective exercises and practical activities, we aim to foster a deeper understanding of green entrepreneurship and its role in driving positive change.

Chapter 3: Green Implementation

Chapter 3 shifts the focus to the implementation of green practices and principles. We explore sustainable development, ideation, and circular design thinking as essential tools for promoting environmental stewardship. Through interactive activities and case studies, we inspire actionable solutions and empower individuals to embrace sustainable practices.

Chapter 4: Green Growth

Delving into the concept of green growth, Chapter 4 explores its implications for economic development, with a focus on the European context. From the European Green Deal to opportunities for green entrepreneurship, we critically analyze strategies for driving transformative change towards a more sustainable future.

Chapter 5: Inclusive and Green Growth

The final chapter explores the intersection of inclusivity and sustainability in driving green growth. We examine the concept of an inclusive green economy, emphasizing equitable and sustainable development. Through case studies and interactive activities, we elucidate the role of businesses and policymakers in promoting inclusive and environmentally responsible growth strategies.

CHAPTER 1
GREEN ECONOMY: MOTIVATION

KEY CONCEPTS

What is entrepreneurship?

*"Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social." (*EntreComp: The Entrepreneurship Competence Framework – 2016 JRC European Commission)

Source: *EntreComp at Work The European Entrepreneurship Competence Framework in action in the labour market: a selection of case studies.* 2019 JRC European Commission

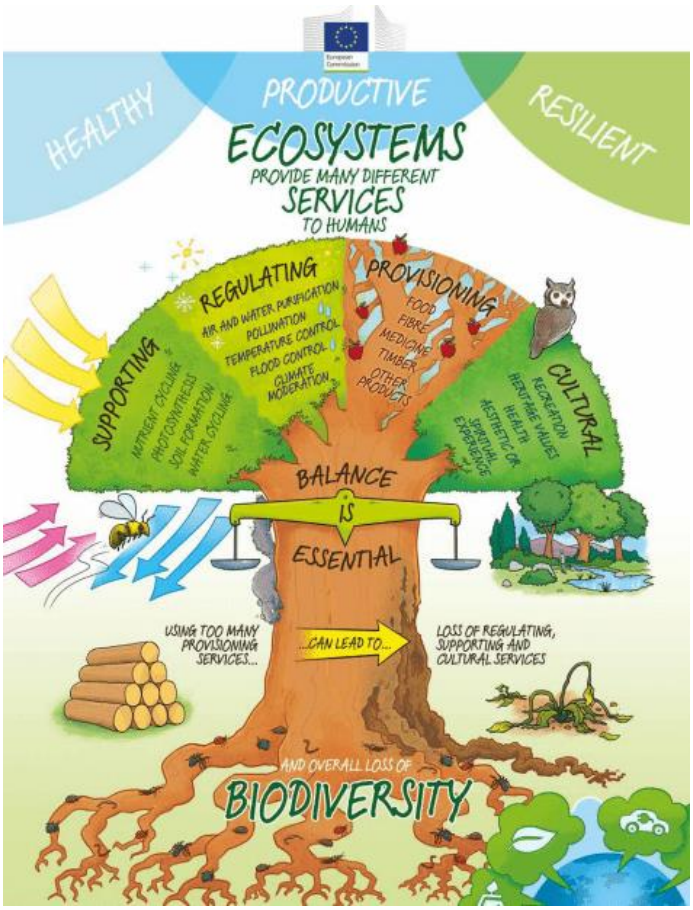
What is Green Economy?

*"Green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities."(*UNEP UN Environment Programme, https://www.unep.org/).

Source: Pixabay

What is Natural Capital?

Natural capital can be defined as the world's stocks of natural assets which include geology, soil, air, water and all living things (Word Forum on Natural Capital: https://naturalcapitalforum.com/).



Source: Science for Environment Policy "Taking stock: progress in natural capital accounting" (2017)

What is Circular Economy?

*"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." (*European Parliament News).

Source: European Parliament News

LET'S GO DEEPER INTO THE TOPIC

What is entrepreneurship?

Entrepreneurship is an essential skill to face the complexity of our times characterised by rapid changes, ambiguity and uncertainty. Entrepreneurship education is one of the main priorities of European education systems. Some years ago the European Union identified the "spirit of initiative and entrepreneurship" as one of the 8 key competences necessary for a knowledge-based society.

Anyway there was not a common agreement in the definition of entrepreneurship at national levels. And the lack of comprehensive learning outcomes for entrepreneurship education was identified as one of the main hindrances to the development of entrepreneurial learning in Europe. From these needs come **EntreComp**, the common European framework about entrepreneurship competence, with a clear definition and a clear description of its components in terms of knowledge, skills and attitudes.

Definition: "Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social ". Main points:

- ✓ This definition focuses on value creation in the private, public and third sectors and in any hybrid combination of the three. It includes different types of entrepreneurship.
- ✓ Entrepreneurship is understood as a transversal key competence applicable by individuals, groups and also organisations.
- ✓ Entrepreneurship as a competence applies to all spheres of life and it enables, encourages the personal development of individuals, their active contribution to social development, ability to enter the job market as an employee or as self-employed, and to start-up or scale-up ventures which may have a cultural, social or commercial motive.

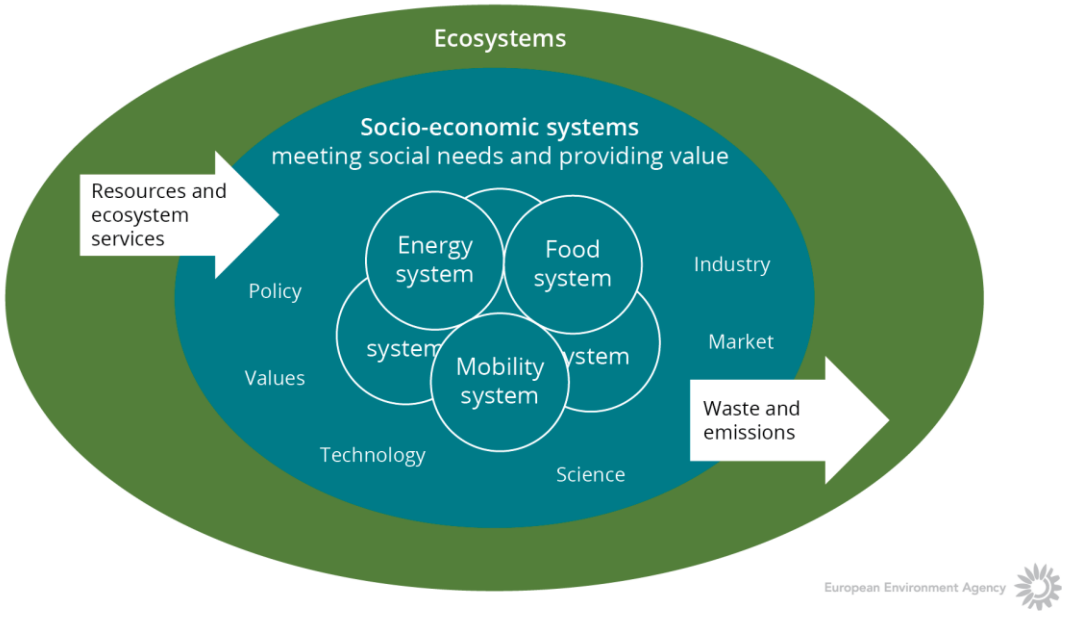
Source: EntreComp framework: EntreComp into action. Get inspired. Make it happen. JRC European Commission

The EntreComp Framework is made up of 3 competence areas: 'Ideas and opportunities', 'Resources' and 'Into action'. Each area includes 5 competences, which, together, are the building blocks of entrepreneurship as a competence. The framework develops the 15 competences along an 8-level progression model. Also, it provides a comprehensive list of 442 learning outcomes, which offers inspiration and insight for those designing interventions from different educational contexts and domains of application.

What is Natural Capital?

With financial capital, when we spend too much we run up debt, which if left unchecked can eventually result in bankruptcy. With natural capital, when we draw down too much stock from our natural environment we also run up a debt which needs to be paid back, for example by replanting clear-cut forests, or allowing aquifers to replenish themselves after we have abstracted water. If we keep drawing down stocks of natural capital without allowing or encouraging nature to recover, we run the risk of local, regional or even global ecosystem collapse.

Natural capital is the most fundamental of the forms of capital since it provides the basic conditions for human existence, delivering food, clean water and air, and essential resources. It sets the ecological limits for our socio-economic systems, which require continuous flows of material inputs and ecosystem services (picture below). Yet, it is not accounted for in nations' wealth accounting systems.



Picture Conceptual framework for ecosystem assessments from European Environment Agency

It is from this natural capital that humans derive a wide range of services, often called **ecosystem services**, which make human life possible. The most obvious ecosystem services include the food we eat, the water we drink and the plant materials we use for fuel, building materials and medicines. There are also many less visible ecosystem services such as the climate regulation and natural flood defences provided by forests, the billions of tonnes of carbon stored by peatlands, or the pollination of crops by insects. Even less visible are cultural ecosystem services such as the inspiration we take from wildlife and the natural environment.

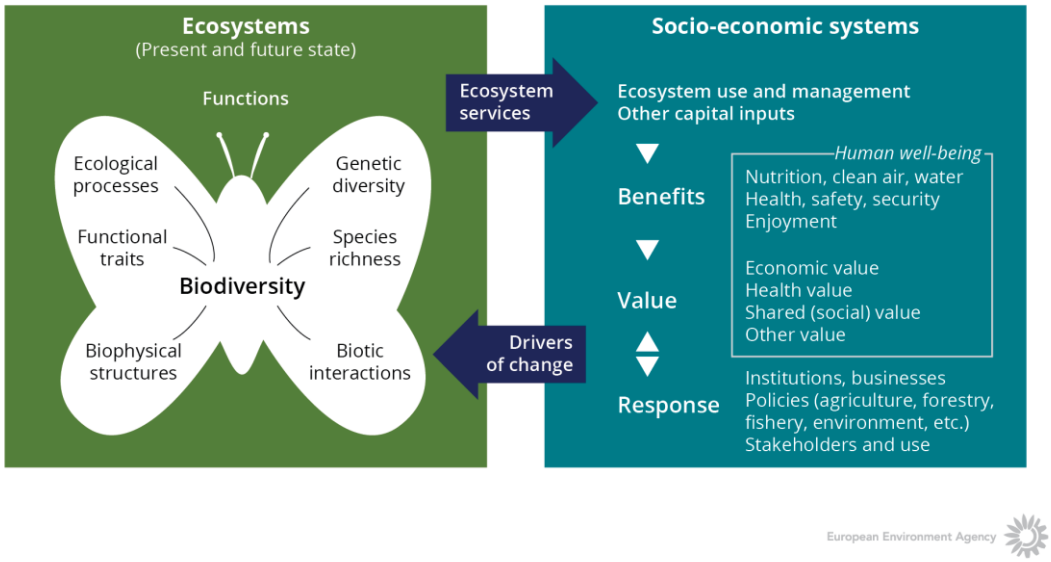
Natural capital comprises two major components:

- ✓ **Abiotic natural capital** comprises subsoil assets (e.g. fossil fuels, minerals, metals) and abiotic flows (e.g. wind and solar energy).
- ✓ **Biotic natural capital** or ecosystem capital consists of ecosystems, which deliver a wide range of valuable services that are essential for human well-being (flora, fauna, marine and terrestrial ecosystems).

Key trends

Assessing the status and trends of natural capital, in particular ecosystem services, is a significant challenge in view of the enormous scale and diversity of environmental stocks and flows. Key actions include

- ✓ mapping and assessing ecosystems and their services,
- ✓ assessing the economic value of such services,
- ✓ promoting the integration of these values into accounting and reporting systems at the EU and national levels



Picture Conceptual framework for ecosystem assessments from European Environment Agency
Sources: European Environment Agency; Word Forum on Natural Capital

What is Circular Economy?

The world's population is growing and with it the demand for raw materials. However, the supply of crucial raw materials is limited. The European Union produces more than 2.5 billion tonnes of waste every year. It is currently updating its legislation on waste management to promote a shift to a more sustainable model known as the circular economy. In practice, 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. 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, to a circular model.

Source: Pixabay

Moving towards a more circular economy could deliver benefits such as:

- ✓ reducing pressure on the environment,
- ✓ improving the security of the supply of raw materials,
- ✓ increasing competitiveness,
- ✓ stimulating innovation,
- ✓ boosting economic growth,
- ✓ creating jobs

Consumers will also be provided with more durable and innovative products that will increase the quality of life and save them money in the long term. Additional information for a better understanding of the shift from linear to circular is available here.

Homework reflection & exercises

Entrepreneurship

Match the sentences below with the right EntreComp competences:

Spotting opportunities; creativity; vision; valuing ideas; ethical and sustainable thinking; self-awareness and self-efficacy; motivation and perseverance; mobilising resources; financial and economic literacy; mobilising others; taking the initiative; planning and management; coping with uncertainty, ambiguity and risk; working with others; learning through experience.

Sentence	EntreComp competence
Learn by doing	
Inspire, enthuse and get others on board	
Assess the consequences and impact of ideas, opportunities and actions	
Team up, collaborate and network	
Develop financial and economic know-how	

Make the most of ideas and opportunities	
Make decisions, dealing with uncertainty, ambiguity and risk	
Gather and manage the resources you need	
Work towards your vision of the future	
Prioritise, organise and follow up	
Stay focus and don't give up	
Develop creative and purposeful ideas	
Go for it	
Believe in yourself and keep developing	
Use your imagination and ability to identify opportunities for creating value	

Circular Economy

Think about a product you consume every day. How could you improve your use of it by adopting a more "circular economy" mindset?

_____

_____

_____

_____

_____

Natural Capital

Move the following words in the right box:

Air; Forest; Metal; Flora; Lakes; Rivers; Fossil fuels; Wind; Oceans; Solar energy; Fauna

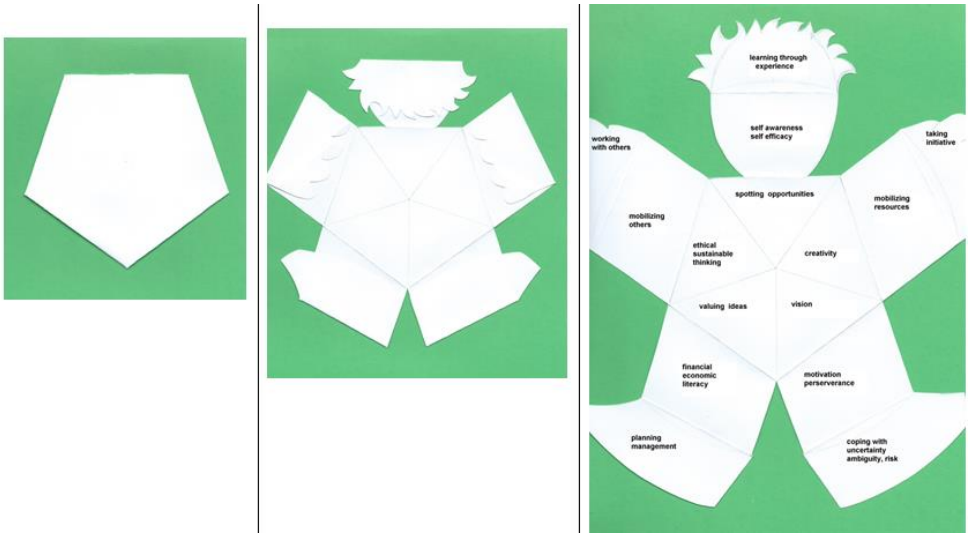
ABIOTIC NATURAL CAPITAL	BIOTIC NATURAL CAPITAL

REFERENCES

- EntreComp: The Entrepreneurship Competence Framework – 2016 JRC European Commission (https://eige.europa.eu/resources/lfna27939enn.pdf)
- EntreComp into action. Get inspired. Make it happen. JRC European Commission (https://publications.jrc.ec.europa.eu/repository/handle/JRC109128)
- UNEP UN Environment Programme (https://www.unep.org/)
- Word Forum on Natual Capital (https://naturalcapitalforum.com/)
- European Parliament (europarl.europa.eu)
- European Environment Agency

PRACTICAL ACTIVITIES

Activity 1: Build your EntreComp Giant

General information	
Name	**Build your EntreComp Giant**
Purpose of the activity	Helping participants to understand and to reflect on the 15 EntreComp skills
Target group	High-school students
Group briefing	EntreComp Giant is simple and engaging tool to visualise and map EntreComp competences. A creative way to better understand EntreComp framework competences and work on them. Made by Maria Sourgiadaki, it's a paper origami pentagon that can be unfolded into the shape of a giant, with each folded part representing 1 of the 15 EntreComp competences. This unfolding process is intended to demonstrate the metaphor of how competences build our strength and act an engaging and memorable way for students to get to know and understand the different entrepreneurial competences. 
Estimated type and size of the group	4-20 high-school students
Learning outcomes/ objectives	Students will be able to: - understand the official EU definition and meaning of entrepreneurship - recognise the 15 competences of the EntreComp framework - understand the 3 different areas of EntreComp framework - carry out a short self-assessment on their own entrepreneurial competences, by diving them according to EntreComp framework

Activity outline	
Goal	Making students reflecting on the 15 EntreComp competences
Duration	90 minutes
Task description	The main body includes the Ideas and opportunities competences; the face, the arms and legs are the Resources area and the brain; the hands and the feet represent the Into action elements. It is a creative way for migrant women to memorise the EntreComp framework and to highlight its importance. Just by drawing it, migrant women can better memorise which are the 15 EntreComp competences.  Source: EntreComp into action. Get inspired. Make it happen. JRC European Commission Your role as teacher is supporting your students in building their own EntreComp Giants. **STEP 1:** Shortly introduce to your students the European definition of entrepreneurship and the EntreComp framework wheel. (30 minutes)  Source: EntreComp into action. Get inspired. Make it happen. JRC European Commission

STEP 2: Shortly introduce to your students the EntreComp Giant and ask them to draw a copy (20 minutes)

STEP 3: Ask to your students to reflect upon each of the 15 competences and to give a mark to each one of them, depending on how they feel themselves confidence. (30 minutes)

1	2	3	4	5	6	7	8	9	10

STEP 4: ask to each student how much is her average score in each one of the 3 area. Sum up the total score she got in each area and then divide it into 5. Example: Maria got 5 for spotting opportunities; 7 for vision; 4 for creativity; 8 for valuing ideas; 6 for ethical and sustainable thinking. Maria got a total score of 30 points. Maria's average in the first area is 6. (Timing: 10 minutes)

MARIA'S SCORE

IDEAS AND OPPORTUNITIES	RESOURCES	INTO ACTION
6		

Remarks	This is a new version of Entrecomp Giant we implemented on the basis of our needs. Source of EntreComp Giant: EntreComp into Action - McCallum E., Weicht R., McMullan L., Price A., EntreComp into Action: get inspired, make it happen (M. Bacigalupo & W. O'Keeffe Eds.) , EUR 29105 EN, Publications Office of the European Union, Luxembourg, 2018. ISBN 978-92-79-79360-8, doi:10.2760/574864, JRC109128

Activity 2: How do we take care of our natural resources?

General information	
Name	**How do we take care of our natural resources?**
Purpose of the activity	Nearly all types of solid wood can be reused. Wood can be salvaged from old buildings, bridges and wharfs and used again in modern décor, from furniture to flooring. Smaller, less valuable wood scraps can be collected and used to make particleboard and other composite products.
Target group	Students with cognitive challenges
Group briefing	The pupils are introduced to the basic ideas of circular processes and in this case particularly the recycling of wood the students get to know the processes by being directly involved in the tasks from the arrival of the wood to the finished product students learn to manage the process by being involved on a practical level and with side training and support from subject teachers
Estimated type and size of the group	Individual learning processes or in pairs
Learning outcomes/ objectives	The students gain an understanding of why recycling wood is a circular process. They gain knowledge of handling disposable pallets for recycling They learn to handle practical processes from start to finish and cooperate. Think creatively in relation to circular possibilities in different contexts Learn to use the maxi machines and tools for handling wood, so that this can be used for new purposes
Activity outline	
Goal	Gain knowledge of circular processes and recycling of natural resources Gain knowledge of local companies and the opportunities that lie in collaborating around residual materials and waste. Collaboration to solve challenges in using residual products for new products. Gain awareness that we can advantageously work with circular processes and still make products that are saleable.
Duration	12 - 24 months
Task description	The students will be able to handle processes in the workshop, where recycled wood and disposable pallets are sorted, adapted and cut up for recycling. The students can independently handle the process from the arrival of the wood to the finished material that can be used. After an introduction, and with continued support, the students can prepare new products that can be sold to individuals and businesses
Remarks	During the process, the students' involvement is adapted to the individual's challenges and therefore limitations
Supporting materials (materials needed for the lecture)	
Because we work with learning by doing, it is primarily training in the use of equipment, machinery and tools. • https://www.re-thinkingthefuture.com/designing-for-typologies/a4184-40-ways-to-reuse-wooden-pallets/ • https://rotom.co.uk/articles/post/one-way-wooden-pallets-can-they-be-used-more-than-once	

Recommendations (tips for trainers)

Tips connected to your activity.
Teaching students with special needs requires individually adapted teaching.
The students have very varied levels of cognitive functioning, which must be taken into account in introduction and training.
Students work best in small groups and with side-by-side training.
The best results are achieved through learning by doing with the subject teacher as visible support as needed.
The tasks must make sense.

Activity 3: Lichens monitoring

The methodology for detecting air pollution with epiphytic lichens (i.e. living on tree trunks) is based on a measure of biodiversity, i.e. the abundance of lichen species. Biodiversity values are interpreted in terms of a departure from expected naturalness. This departure is due to the presence of pollutants (mainly phytotoxic gases: sulphur and nitrogen oxides) that cause lichen communities to decrease in the number of species and a decrease in their coverage/frequency.

In fact, lichens respond relatively quickly to worsening air quality and can re-colonise urban and industrial environments within a few years if there is an improvement in environmental conditions, as evidenced in many parts of Europe.

The measurement of Lichen Biodiversity is understood as the sum of the frequencies of lichen species in a survey grid of fixed size.

In recent decades, many methods have been proposed which, using appropriate interpretation scales, assess air quality through lichens.

Studies based on epiphytic lichens have been widespread in Italy since the 1980s, and numerous investigations have been carried out to date.

The scale used for the interpretation of L.B.L. (Lichen Biodiversity Index) values and their attribution to specific Naturalness/Alteration classes is the one proposed by GIORDANI (2004) for deciduous oaks in the Mediterranean and sub-Mediterranean region (Tab. I).

For an easier interpretation of the data, each Lichen Biodiversity value can be associated with the degree of deviation from natural conditions by means of a scale; furthermore, for a better visualisation of the results, a cartographic elaboration can be carried out that shows a subdivision of the territory under examination into areas with different lichen biodiversity: a colour is associated with each class of naturalness/alteration (see Tab. 1 Scale Giordani et al. 2004).

Valore	Classe di naturalità/alterazione	Colore
>186	Naturalità molto alta	
156-186	Naturalità alta	
125-155	Naturalità media	
94-124	Naturalità bassa/ Alterazione bassa	
63-93	Alterazione media	
32-62	Alterazione alta	
0-31	Alterazione molto alta	

References

Conti, M.E. and Cecchetti G. (2001). Biological monitoring: lichens as bioindicators of air pollution assessment — a review. *Environmental Pollution,* 114(3).
https://www.sciencedirect.com/science/article/abs/pii/S0269749100002244

Stolte, K. et. al. (1993). Lichens as bioindicators of air quality. Gen. Tech. Rep. RM-224. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station.
https://www.fs.usda.gov/rm/pubs_rm/rm_gtr224.pdf

General information	
Name	**Lichens monitoring**
Purpose of the activity	The initiative of biological monitoring using epiphytic lichens falls within the framework of Legislative Decree 155/2010 on 'Ambient Air Quality and Cleaner Air in Europe' and within the framework of all ongoing national and regional activities on air quality assessment and management. Although there is no explicit requirement in current legislation for biological monitoring, lichens make it possible to carry out scientifically valid and comprehensive environmental investigations for the purpose of assessing air pollution. Indeed, they can be used both as bio-indicators, correlating certain intensities of environmental disturbance with changes in quantity and quality, and as bio-accumulators, exploiting their ability to absorb trace elements from the atmosphere. This is why they are widely used in biomonitoring studies and a European standard has just been published standardising their use as air quality indicators. Clearly, as lichens are living, long-lived organisms, the effects of the pollutants they experience must be assessed over the long term and always compared and integrated with chemical air quality surveys.
Target group	Students from the 3th and 4th year (16/18 years old)

Group briefing	• Conducted separately with the 5 groups. • The team leader (a student appointed by his mates) presents the gathered information/achieved objectives. • The meeting is short, usually no more than 30 minutes. • People are encouraged to ask questions. • Teachers supervise but don't intervene.
Estimated type and size of the group	Four groups, 5 students each.
Learning outcomes/ objectives	Students learn how to manage a project from the beginning to the end, outcomes/starting from the study and choice of the most suitable materials (types of objectives, colors, types of plants) to the study and choice of the plants capable of resisting different weather conditions. They are also given a certain budget, within which to decide which products to buy. Entrecomp competences: • Spotting opportunities • Creativity • Ethical and sustainable thinking • Self- awareness and self- efficacy • Motivation and perseverance • Mobilising resources • Taking the initiative • Planning and management • Working with others • Learning through experience • Financial and economic literacy
Activity outline	
Goal	The application of this method provides an indication of the state of environmental alteration on the basis of the lichen biodiversity of the area under investigation. A high degree of naturalness is associated with areas of high lichen biodiversity and a low degree of naturalness with areas of low lichen biodiversity.
Duration	Two months
Task description	The method used is the reference method described in the ANPA Manual (AA.VV., 2001). The L.B.I. is calculated as the sum of the frequencies of the lichens present within a 10x10 cm mesh sampling grid applied to each tree surveyed. The grid consists of 4 subunits, each with a vertical row of 5 meshes, positioned at the four cardinal points: N, S, E, W at 1 metre above the ground. The I.B.L. values found are related to the Naturalness/Alteration scale.
Remarks	Each group is guided through a division of tasks based on each member's personal skills and inclinations.
Supporting materials (materials needed for the lecture)	
Lichen Monitoring in US National Forests and Parks. (2023). Reports, Publications and Other Resources: https://gis.nacse.org/lichenair/?page=reports National Park Service: Lichens as Bioindicators: https://www.nps.gov/articles/lichens-as-bioindicators.htm	

Recommendations (tips for trainers)

The biodiversity of epiphytic lichens has proven to be an excellent indicator of pollution by phytotoxic gaseous substances. Over the past decades, many methods have been proposed which, using appropriate interpretation scales, assess air quality through lichens. In Switzerland, a project was initiated in the 1980s, which led to the development of an objective and reproducible bioindication model sensitive to the combined effect of many air pollutants. The verification, by means of multivariate statistical analysis, of 20 different techniques used to calculate the IAP (Index of Air Purity), showed that sampling with a grid of 10 units represented the best results and did not require any assumptions regarding species sensitivity. This method was quickly adopted in many countries, especially Italy and Germany, often with the introduction of some modifications regarding grid width. In the approach developed in Switzerland, the grid size varies with respect to the diameter of the trunk, while in Italy and Germany, fixed grid sizes have been adopted, although they differ from each other, thus allowing the frequency data to be used as an estimate of lichen diversity. Since 1987, hundreds of studies based on this method have been carried out, allowing an important step towards standardisation in both Germany and Italy. Recently, there has been a shift away from the GPI, towards the so-called lichen biodiversity value (BL), which attempts to eliminate the elements of subjectivity existing in the previous guidelines developed in Italy and Germany, giving specific attention to the selection of sampling sites, the trees to be monitored and the position of the sampling grid.

This method estimates the state of lichen diversity under standard conditions after long-term exposure to air pollution and/or other environmental stresses. It is important to point out that the lichens considered for biodiversity assessment are essentially epiphytic lichens, which makes it possible to limit the variability of pollution-independent ecological parameters (such as base content or water capacity, which are highly variable in lithic substrates). For monitoring purposes, trees with easily exfoliated bark (e.g. Aesculus, Platanus) should be excluded; Sambucus and Robinia pseudacacia, with a high bark water capacity, and Celtis and Populus alba species, which maintain a smooth bark for a long time and are poorly colonised by lichens, are not recommended; Fagus is only allowed in mountainous areas, and outside urban centres. Studies based on trees of different groups are not directly comparable. Preferably, only one tree species should be used. When this is not possible, other species within the same group can be used. Tilia in particular is preferable. Exceptionally, it is possible to use species from different groups, but only if an adequate number (at least 10) of stations with all phorophytes can be identified, in order to establish possible data transformations by means of adequate statistical justification. The sampling grid consists of four sub-units, each formed by a linear series of five 10x10 cm squares, which must be arranged vertically on the trunk. The lower part of each unit must be placed one metre above the ground surface. All lichen species (including sterile crustose lichens) present within each unit and their frequency, calculated as the number of squares in which each species is present (the frequency values of each species thus vary between 0 and 5) must be noted; if the same individual of a species is present in more than one square, its frequency is equal to the number of squares in which it is present. The lichen biodiversity (BL) value of the sampling station is statistically estimated on the basis of the values measured at the station itself. The first step is to sum up the frequencies of the species detected on each tree. Since a substantial difference in growth can be expected on different sides of the trunk, the frequencies must be kept separate for each cardinal point. For each tree, four sums of frequencies will thus be obtained (BL North, BL East, BL West, BL South). At each station, the following operations will be carried out: 1) sum the frequencies of all the species for each survey (BL of the survey) 2) sum the BLs of all the surveys taken at the same cardinal point, and divide by their number (BL of the cardinal point) 3) sum the BLs of the 4 cardinal points (BL of the station).

After calculating the air quality classes, coloured stamps can be placed on the topographical map at each station. Such a map gives us a true picture of the lichen diversity at the sampling points, but makes no

assumptions about how the air is in the areas between the points. In other words, it is a map that is poor in information and not clearly interpretable. In order to define the air quality in the intermediate zones, where no measurements have been taken, it is necessary to resort to mathematical solutions, which are based on the assumption that the air quality between two measurement points has intermediate characteristics between those points. This assumption is all the more realistic the more 'dense' the sampling stations are. By working in this way, it is possible to construct thematic air quality maps in which the topographic surface is completely coloured, with the colours corresponding to the quality classes. A reliable representation is obtained with maps that connect the points with equal LDV index values with lines (isofrequency lines). In this way, the approximation made is low and the map appears as areas of different colours and sinuous shapes. These maps can be obtained with a personal computer, using specific software that performs statistical interpolations.

Activity 4: "We are all connected in the great circle of life"

The bio-waste fraction plays an important role in recycling and the nascent circular economy, so the implementation of separate collection of bio-waste in the school is necessary for a sustainable society. The students are involved in a progressive change of mentality and in a concrete protagonism.

General information	
Name	**"We are all connected in the great circle of life"**
Purpose of the activity	MAIN GOAL: trying to change the students approach towards a given activity problem. Specifically, our school needed to improve recycling bio waste and produce source of organic matter for flowers and plants in the garden.
Target group	Students from the 3th and 4th year (16/18 years old)
Group briefing	• conducted with the 4 groups • the team leader (a student appointed by his mates) presents the gathered information/achieved objectives • the meeting is short, usually no more than 30 minutes • people are encouraged to ask questions • teachers supervise but don't intervene
Estimated type and size of the group	Four groups, 5 students each
Learning outcomes/ objectives	Students learn how to manage a project from the beginning to the end, outcomes/ starting from the study and choice biodegradable waste, such as food scraps and garden waste, to the study and choice different conditions for improving the process. They are also given a certain budget, within which to decide which products to buy. **Entrecomp competences:** • Spotting opportunities • Creativity

	• Ethical and sustainable thinking • Self- awareness and self- efficacy • Motivation and perseverance • Mobilising resources • Taking the initiative • Planning and management • Working with others • Learning through experience • Financial and economic literacy
Activity outline	
Goal	• Identifying a problem through an audit • Planning out their actions • Monitoring and evaluating the implementation of an action plan • Reflecting and making changes • Team building • Living physical experiences that lean into the importance of body and feeling • Engaging with local stakeholders
Duration	6-9 months
Task description	After several meetings where they plan all necessary activities, students are able to: • Choose the most suitable bio waste. • Choose the most suitable compost bin. • Work on task: find organic waste at school, planning the sites in which put organic bins in the school, choose organic waste. • Share the carried out activity with all school students.
Remarks	Each group is guided through a division of tasks based on each member's personal skills and inclinations.
Supporting materials (materials needed for the lecture)	
School Gardening: Composting for schools. https://schoolgardening.rhs.org.uk/resources/Info-Sheet/Composting-for-schools Garden organic: https://www.gardenorganic.org.uk/ European Environmental Agency: Reducing and recycling food and garden waste to boost Europe's circular economy. https://www.eea.europa.eu/highlights/reducing-and-recycling-food-and M. Joan. (2010). Europe and organic waste – EU biowaste law needed! *Zero Waste Europe.* https://zerowasteeurope.eu/2010/09/europe-and-organic-waste-eu-biowaste-law-needed/	

CHAPTER 2
GREEN ECONOMY: CHALLENGE

KEY CONCEPTS – GREEN BUSINESS & INNOVATION

Businesses have been turning more and more towards sustainability in recent years, as the public becomes more environmentally conscious.

These are some of the **things to consider if a business is green:**

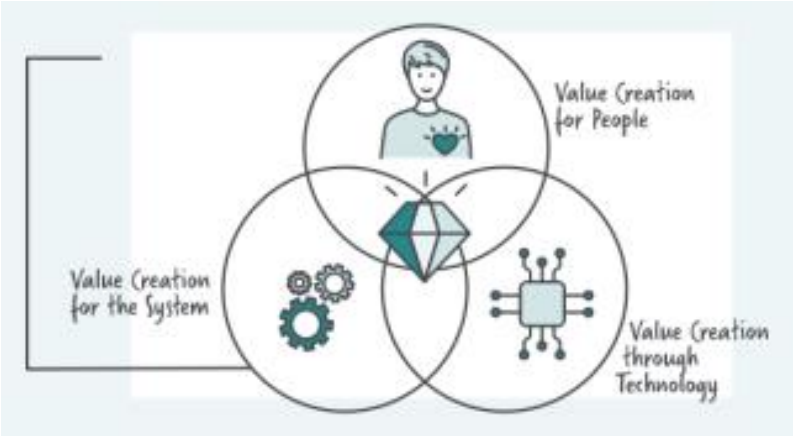
- The mission and principles of sustainability and environmental concerns are integral part of all stages of the business, from planning to delivery.
- Development of environmentally friendly products or services that can benefit the end user and the nature. Green footprint can be calculated and it gives insight into the impact of the business on the environment with travels, consumption, and waste.
- It is greener than other products or services. A reuse/reduce/recycle approach is simple and important – If learned how to do it correctly the business can save costs, be greener and avoid waste.
- It provides a sustainable long term alternative and cares about the product lifecycle (how long the product lasts, what resources are used, what waste is created with it …)

Green business covers all (or at least most) of the areas below:

- Environmental respect – zero or low pollution, use of local resources, not damaging the environment
- Energy efficiency – good use of heating systems, good building isolation in buildings, closed windows ...
- Sustainable transportation – electric vehicles, use of bicycles or walking, zero or low pollution transportation etc.
- Green energy harvesting – wind, solar, wave, geothermal energy …
- Wise use of resources – avoiding the use of paper, working as much online as possible, using local products and human resources, allocate the adequate number of resources to obtain the final results etc.
- Human concern – causing good impact in the local community, care about their workers, involves the community, social responsibility.

To be totally green can be difficult but achievable with commitment.

Innovation refers to something new or to a change made to an existing product, idea, or field. It is also about successfully implementing a new idea and creating value for customers or users.



Source: HPI Academy, https://hpi-academy.de/en/innovation-transformation/

Eco-innovation is the development and application of novel solutions, implementations, modifications to business model that incorporate sustainability throughout all business operations. Eco-innovations have implications for companies' products, manufacturing, organisation, market approach, and marketing.

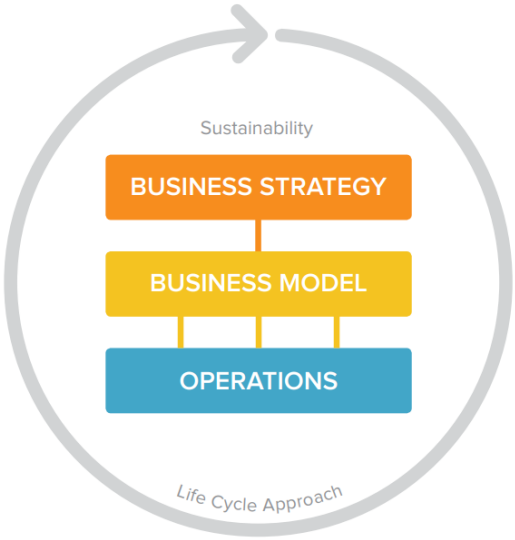


Figure: Conceptual model of eco-innovation.
Source: *Eco-i Manual: Eco Innovation Implementation Process.*

"We cannot solve our problems with the same thinking we used when we created them." (Albert Einstein)

Innovative thinking is a complex and creative thought process used to generate new ideas and solutions. It involves looking for ways to think or act differently in order to encourage change that can produce better practices for different individuals, organisations and companies.
Traits of innovators that help them contribute new, innovative ideas are creativity, originality, problem-solving, critical thinking, curiosity, collaboration and communication.

Source: https://www.greenmatch.co.uk/blog/sustainability-trends

LET'S GO DEEPER INTO THE TOPIC

Best ideas usually come from a need of an entrepreneur and of the market: from creating a new product to providing a new service which has not existed before. Elon Musk, the developer of PayPal and Tesla, created his business because there was a need to be able to make payments online in an easier way and to develop better electric cars, facing the problems of the limitation and pollution with fossil fuels.

STEP 1: Think about and identify your needs: What is missing, what could help people to have a better and easier life?

Technology is an important part of our lives and new things appear every day. There's always something new and innovative, maybe even revolutionary in the horizon.

STEP 2: Think about what the future will bring and what is the next big idea – e.g. How will our houses look in the future? How will we communicate with people in 10 years?

Find a niche: Some products or services are related to specific needs of a certain group of people (e.g. people that ride bicycles, vegetarians, eco-conscious people). Research existing business and markets and identify an opportunity that can be seized.

STEP 3: The opportunities are out there, you just need to identify them. In which niche would you like to work?

Use your knowledge and skills. Many businesses started by lonely entrepreneurs which saw their strong points and used them. Sometimes your skills are not even related to your chosen area of study or work and you have the chance to use them in the same or in a different area. E.g. if you are a teacher, you can start giving private classes as a new business, or you can use your skills of communication and teaching to build a new company of training services.

STEP 4: What are the things you are good at and that can be developed in a business? Reflect on your knowledge, skills and experiences.

Sometimes there's no need for a new idea. There are lots of businesses in the market that you can improve by offering **better or cheaper services or products.**

STEP 5: Think about an area that you could provide better quality or lower prices of products/services compared to those already in the market.

Research is important so just do it. The more you research the better prepared you will be to develop something new, innovative, successful.

STEP 6: Start by asking people around you (e.g. friends, family, acquaintances, teachers, neighbours etc.) what kind of business they would like to see appearing, what are their needs, passions, hobbies, what they miss in the market. Look online for business, talk with local shop owners, and meet with other entrepreneurs.

Following your passion is important in entrepreneurship. Doing what you love makes you motivated, eager to work hard and encourages you to develop new ideas, learn and grow.

STEP 7: Think about what motivates you and what you are passionate about. If you don't know your passion yet, think about your hobbies, interests and start from there.

Homework reflection & exercises

Research the green business ideas, cases and trends that can inspire your business idea.

- Green Business Challenge: https://thegreenbusinesschallenge.nl/cases/
- Freedman, M. (2023). 23 Green Business Ideas for Eco-Minded Entrepreneurs https://www.businessnewsdaily.com/5102-green-business-ideas.html

References

- Altenburg, T., & Assmann, C. (Eds.). (2017). Green Industrial Policy. Concept, Policies, Country Experiences. Geneva, Bonn: UN Environment; German Development Institute / Deutsches Institut für Entwicklungspolitk (DIE) https://wedocs.unep.org/bitstream/handle/ 20.500.11822/22277/Green_industrial_policy.pdf?sequence=1&isAllowed=y
- FutureNetZero. (December 2022). Climate & Environment, Digital & Tech, Energy & Heat
- The Top 3 Green Business Trends for 2023.
- https://www.futurenetzero.com/2022/11/11/the-top-3-green-business-trends-for-2023/
- Mykay, B. (December 2022). *GreenMatch: Global Sustainability Trends 2023 - Insights from 42 professional experts!* https://www.greenmatch.co.uk/blog/sustainability-trends
- Marr, B. (December 2022). *Forbes. Innovation. Enterprise Tech.* https://www.forbes.com/sites/bernardmarr/2022/10/03/the-5-biggest-business-trends-for-2023/
- Nagy, T., Tacer, B. (2016). *Teaching entrepreneurship in schools: an experiential approach.* Ljubljana: STEP Institute.
- The future of customer engagement and experience. (December 2022). *Sustainability trends 2023: 7 ways retailers will make a difference.* https://www.the-future-of-commerce.com/2022/10/13/sustainability-trends-2023/

INNOVATION

Often creativity and innovation are thought of as synonyms, but they are not. Creativity refers to coming up with a new idea. Innovation is then taking this novel idea, addressing customer needs or solving customer pain points and creating value. As Adam Gutman *(Digital transformation and innovation leader, Assistant Vice President, BDC Innovation)* says profitable and successful innovations need to solve problems.

Innovation can be characterised in different ways.

1. The type of innovation (Many innovations are not just a single type.)

The Oslo Manual defines four types of innovation: product innovations, process innovations, organisational innovations and marketing innovations (OECD/Eurostat, 2005).

2. The source of innovation

Technological innovations are usually associated with product and process innovation.

Non-technological innovations are generally associated with organisational and marketing innovations. Both innovations are highly interconnected.

3. The impact of innovation

A radical innovation creates a completely new business model, offering a novel value proposition. It means to invent or reinvent a product/service, it gives birth to new industries. *Examples: The airplane (it was not the first mode of transportation, but it is revolutionary because it allowed commercialised air travel to develop and prosper) or cloud technology - virtual storage space.*

A disruptive innovation involves applying new technology or processes to the company's current market. It transforms expensive or highly sophisticated products or services to those that are more affordable and accessible to a broader population.

An example: Apple's iPhone: prior to the iPhone, most popular phones relied on buttons, keypads or scroll wheels. Apple has disrupted the mobile phone market with a touch screen (simple to use interface), and mobile applications.

Incremental innovation refers to a change or adjustment to an existing product, service, process, organisation or method that increases the efficiency of the current business model. It utilises the existing technology and increases value for the customer (features, design changes, etc.) within the existing market. It is the dominant form of innovation.

An example: Gmail – It had a lot of improvements in order to provide smooth and user-friendly operations and over time Gmail provides better, faster and easier service with newer features released by Google.

Architectural innovation is taking and applying the lessons, skills and overall technology within a different market. The risk involved is often low due to the reintroduction of proven technology.

An example: In 1966, NASA's Ames Research Center attempted to improve the safety of aircraft cushions. They succeeded by creating a new type of foam (known as memory foam), which reacts to the pressure applied to it, yet magically forms back to its original shape. Originally it was commercially marketed as medical equipment table pads and sports equipment, before having larger success as use in mattresses.

Social innovation

Social innovation is a concept that intends to generate and integrate various innovative, just and effective solutions to meet social goals and solve complex problems that society faces (e. g. poverty, unemployment, homelessness). It seeks to find new answers to social problems by identifying and delivering new services that improve the quality of life of individuals and communities. Social innovation includes a wide range of new organisational structures, financial tools, and partnership models that are more effective and sustainable than existing practices.

Environmental innovation (eco-innovation)

Eco-innovation has to consider all three aspects of sustainability: economic, environmental and social. It must begin with a decision and commitment to make change in the business strategy. It should be holistic in terms of considering all phases of the product life cycle. Eco-innovation requires cooperation of all relevant parties that provide or receive value in the form of products or services (e.g. suppliers, outsourced workers, contractors, investors, R&D, customers etc.). Innovation can add value for a company in different ways as shown in the figure.

Source: *Eco-i Manual: Eco Innovation Implementation Process.*

INNOVATIVE THINKING

Innovation includes the ability to think outside the box to achieve goals, or come up with novel solutions to difficult situations using the environment or objects in an unusual way.
Innovative thinking comes down to the ability to take what already exists and use it in a new way. In the entrepreneurship world, problems can be any number of things related to customers, business activities, tasks to be done, materials, manufacturing, human resources … Innovative thinking allows finding solutions to those problems that haven't been found before.

Innovators possess different traits that help them contribute new, innovative ideas.
Creativity → a way of looking at the world differently, generating ideas through different methods (brainstorming, random input, roleplay etc.).
Originality → finding new ways to express ideas, changing the status quo with inventiveness, conceiving unique ideas to share with others, looking for ways to do something different.
Problem-solving → finding ways to solve problems or address challenges, seeking alternative ways to make something work, learning from failure, taking risks, being persistent.
Critical thinking → using inductive and deductive reasoning to analyse situation, find a solution; synthesizing information, making connections to interpret information and draw conclusions.
Curiosity → asking lots of questions (*Why?, How?)* about the world around us, questioning conventional methods of doing something in order to improve it.
Collaboration → getting others involved, being willing to make compromises to fulfil a common goal, sharing responsibility for success and failure, seeing the potential in others. **Communication** □ being able to communicate and share ideas, solutions effectively, motivating and fostering innovation in others.

How to improve innovative thinking skills
Everyone has the potential to be innovative. Individuals who innovate are valued for the way they actively pursue initiatives that improve efficiency and bring new or added value.

Here are some ways to practice and demonstrate innovative thinking at work or in a team.

- **Be the first to provide a solution.**
- **Write down new ideas.** Keep a list or journal of ideas; it is easier to build upon them.
- **Act on your ideas.** Practice innovative ideas by creating new processes or solutions.
- **Share innovative ideas with team leaders or management** (or teachers, classmates).
- **Learn and incorporate new skills.** Learning contributes to innovative thinking.
- **Ask for input on new ideas.** Brainstorm innovative ideas with others.
- **Learn to use failure.** Give yourself room to make mistakes and try to learn from them.

Homework reflection & exercises

Below are some ideas on how to further strengthen innovative thinking.

- **Do usual things in an unusual way.** Think about how you can do ordinary things differently. For example, brush your teeth with the other hand, or take a new route to the school. This is how we create new neural connections.
- **Be curious about subjects unrelated to you.** Expose yourself to activities or subjects you're unfamiliar with. That can give you a fresh perspective. For example, if you are a focused on engineering, start playing chess or watch the travel channel.
- **Come up with new ways to use common items.** Think about any object and how it's typically used. Example: a paperclip's main purpose is to attach sheets of paper. Think about ways in which one

cannot use it. This may not be as easy as you think. Maybe you might think that you can't use a paperclip to write on paper. But, is it really true?

- **Watch movies and read books about innovative thinking.**
  October Sky, a 1999 film based on the true story of Homer Hickam, a coal miner's son who was inspired by the first Sputnik launch.
  Interstate 60, a 2002 cult classic tells about Neal Oliver who takes a journey on a highway that doesn't exist on any map, going to places he's heard of in search of an answer and his dream girl.
  Cracking Creativity by Michael Michalko
  Accidental Genius by Mark Levy

REFERENCES

- Constant Content (November 2022). Types of Innovation. https://techblog.constantcontact.com/software-development/types-of-innovation/ BDC. Articles and tools. Business strategy and planning. Innovate (November 2022). *What is innovation?* https://www.bdc.ca/en/articles-tools/business-strategy-planning/innovate/what-is-innovation
- Digital Leadership. (November 2022). *Innovative Thinking: Skills, Definitions & Strategies.* https://digitalleadership.com/blog/innovative-thinking/
- Epam anywhere. (November 2022). *Productivity: What is innovative thinking and how can you develop it?* https://anywhere.epam.com/en/blog/what-is-innovative-thinking-and-how-can-you-develop-itIndeed. Career guide. (November 2022). *Career development: What Are Innovative Thinking Skills?* https://www.indeed.com/career-advice/career-development/innovative-thinking
- Innovation for Social Change. (November 2022). *Social Innovation.* https://innovationforsocialchange.org/en/social-innovation/.
- Innoverce365. (November 2022). *Incremental innovation.* https://innoverce365.com/ incremental-innovation/
- OECD/Eurostat (2005). The Measurement of Scientific and Technological Activities – Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd edition.
- United Nations Environment Programme. (2016). *Eco-i Manual: Eco Innovation Implementation Process.* http://unep.ecoinnovation.org/wp-content/uploads/2017/07/ UN_Environment_Eco%E2%80%94i_Manual-1.pdf
- USC Price. (December 2022). *What Is Social Innovation?* https://socialinnovation.usc.edu/about-the-price-center/what-is-social-innovation/

KEY CONCEPTS – LEARNING ABOUT THE CUSTOMER AND LOCAL BUSINESS (FIELDWORK)

Customer research can take many forms, from notes taken on a daily basis to more planned and structured methods of data collection.

Identifying the best customer research methods for the business may take some trial and error, but the rewards are worth it. Wherever possible, customers should be grouped into customer segments to help achieve the goals of data collection.

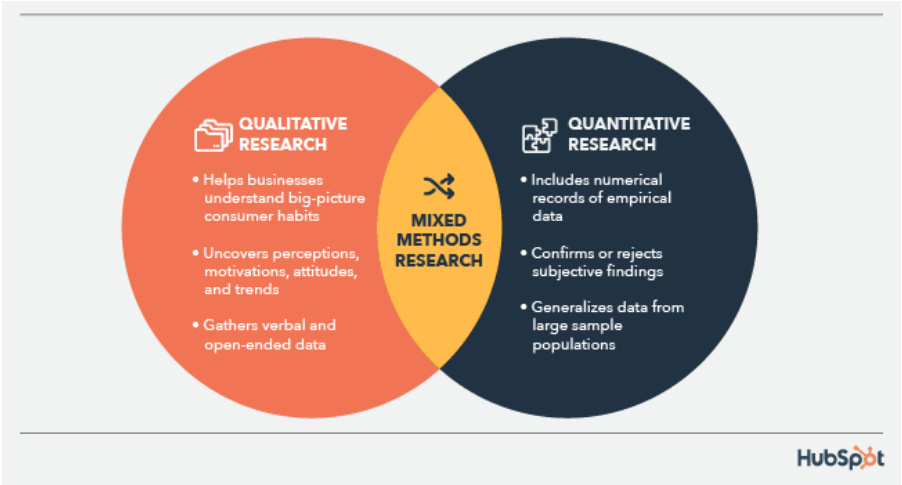
Source: https://images.slideplayer.com/15/4553760/slides/slide_2.jpg

In researching customer needs, it is important to differentiate between observation and interpretation. Firstly, focus on gathering information without interpreting it.

Source: https://www.plerdy.com/blog/market-research/

Qualitative research is a methodology which focuses on how people feel, what they think and why, how they make certain choices. It involves determining customer motivation through close observation, usually in a small group or face-to-face encounter. It allows researchers to observe and understand the emotional reactions people have to a product, service or idea.

Quantitative research refers to the process of collecting large amounts of data through surveys, questionnaires, and polling methods. It can either be paper-based (in the form of a postal survey) or computerised (online survey or telephone call). Sample size is very important since there needs to be a minimum number of responses for any particular area of interest. 100 responses is agreed to be the bare minimum, but larger sample sizes are needed for the most reliable quantitative data.



Source: https://blog.hubspot.com/service/qualitative-research-methods

Commonly used techniques for researching user needs are interviews, observation, focus groups and field research. Researcher has to show specific behaviour in order to successfully implement the qualitative research:

- empathy – putting yourself in the user's shoes,
- real interest in the user, curiosity,
- establishing a relationship based on trust,
- listening,
- observing details and the big picture.

Customer research is crucial for business growth. Keeping in touch with the customer base is one of the best ways to find out what is being done right and what could be improved. The data collected can impact the way the product is built or what messages are communicated to the customers, which is directly tied to healthy and sustainable business growth.

LET'S GO DEEPER INTO THE TOPIC

The purpose of qualitative customer research methods is to understand the customer needs and potential obstacles without prejudice, evaluation, assumptions and judgement. It is the practice of identifying the preferences, attitudes, motivations, and buying behaviour of the targeted customer.

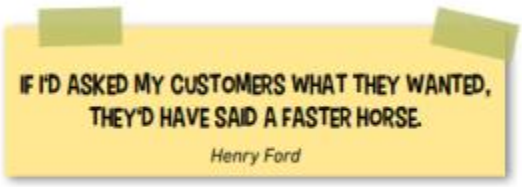
Source: https://ibigrs123.medium.com/importance-of-qualitative-and-quantitative-research-for-small-business-c475b9b9d763

By using a variety of qualitative customer research methods (e.g. interviews, surveys, focus groups, observation, field research etc.) the information is gathered and shared traits among the different customer groups are identified and categorized into customer segments and buyer personas. These are then used to create targeted marketing campaigns.
Customer research is the key to business growth since it puts customers first, it defines the audience, helps define or keep focus, stay relevant and improve the product or service.

A **customer segment** is a group of individuals who share specific traits relevant to marketing (e.g. age, location, gender, spending habits, interests …). The purpose of a customer segment is to provide a better understanding of specific demands and purchasing decisions of different groups of customers. Different customer segments may require different messaging, communication channels, delivery methods or even pricing options. Customer segments can help an entrepreneur or a company to identify the most profitable customers, establish better customer relationships, better targeting of marketing efforts and improve customer service. Not identifying customer segments through research can end in missed opportunities and failing to gain a competitive advantage in the market.

A **buyer persona** is a research-based profile constructed from the analysis of real customers. It is a detailed description of the target customer built from the words of actual customers. It provides in depth insight into who they are, their values and motivations. Buyer personas allow brands to better understand customer segments, and recognize the key traits within them. This can ensure that different activities are tailored to the needs of customers.
An example: Lisa, 45-year-old single mom, has 2 kids, earns a modest income, enjoys tennis.

Techniques for researching user needs: interview, observation and field research.



OBSERVATION

First, we need to ask ourselves what it is that we already know about our business challenge. It needs to be done in order to avoid having to collect previously acquired information again.
Some information gathering techniques:

- Photography
- Video recording
- Note taking
- Sketching
- Collecting materials, flyers, brochures, packaging, newspaper cut-outs

We can observe many things.

- Physical space: physical characteristics, what stands out, what does not stand out
- Which people are involved: users, employees, manufacturers, managers, media, municipalities, local communities, interest groups
- Activities: individual activities, behaviours, sequences of activities, similarities and differences in activities
- Objects: the presence of objects, the absence of objects, the characteristics of objects
- Events: what is going on, what are people doing
- Time: sequences, beginnings, ends, individual stages, duration, times when specific behaviours, reactions or activities come up
- Goals: what are people trying to achieve
- Feelings: what feelings are people experiencing and expressing

It is also very important to observe what people:

- **SAY**: What are some quotes and defining words your user said?
- **DO**: What actions and behaviours did you notice?
- **THINK**: What might the user think? What does this tell you about his/her beliefs?
- **FEEL**: What emotions might your subject be feeling?

Thoughts/beliefs and feelings/emotions cannot be observed directly. They must be inferred by paying careful attention to various clues. Attention needs to be payed to body language, tone, and choice of words.

INTERVIEW

Interviews can offer a high level of insight into the mind of the customer with very specific details about their needs, wants, and motivations related to the product or service. The data can be used across all aspects of creating/upgrading a business model or specific strategies.

With the use of active listening skills and by creating an atmosphere of trust, people open up.
Semi-structured interviews are a good idea to use. Start by forming a few questions in advance, then follow the interviewee's story and develop new questions in accordance with that. Interviews can be conducted with different individuals or groups, users or experts. It is useful to find a user who uses a product or service in an unusual way.

You have two ears and one mouth. Use them in the same ratio when conducting interviews. Also, listen with your eyes as well as your ears.

The importance of open questions

Open questions encourage conversation and invite the user to open up. These are questions that usually begin with W-words: what, who, when, where, which, what kind, how etc.

Encourage the user to think out loud or to visually present his/her thoughts, e.g. by drawing.
The question ***"Why?"*** has to be used with care because it can seem like an interrogation. "*Why?*" can be replaced with other questions as often as possible, e.g. *For what purpose?, How did you reach this decision?, What is behind this?, What are the reasons for this?*

The question ***"What if?"*** is used to encourage creative thinking, open new possibilities and test hypotheses, e.g. What if this product had ..., What would happen if ...?
Closed questions (like "*Do you?*") end the conversation and lead to short answers. If we ask the interviewee, "*Do you like this product?*", he or she will answer either yes or no. By asking "*What exactly do you like about this product?*" we increase the chances of the interviewee opening up. However, closed questions can be useful towards the end of the interview.

Few extra tips:

- Select your user wisely. Your mum, dad, and friends are not users.
- Find innovative users who use the products in new and innovative ways.
- Encourage storytelling and sharing experience.
- Do not present your business idea and ask users if they like it, how they would change it, when they would use and how much would they pay for.
- Document the interview using pictures, sketches, photos, notes, video etc.

Content is important. But it is important to focus on YOUR customers and their reasons for using your product/service are, not only on what you feel like creating/doing, what competitors are doing, or what an influencer said was trending now. Find out the reason for why your customers stayed with you and ask them what they'd like in the future from you.

FIELDWORK

Fieldwork is a practical work conducted by a researcher in the natural environment, rather than in a laboratory or office. It is the collection of primary data from external sources, e.g. people who spend a lot of time in parks, companies who would like to become green in the disposal of their waste, young people who eat healthy food etc.

Through fieldwork we:

- **Translate our assumptions, hypotheses, and wishes into facts.** Entrepreneurs have a lot of assumptions about their customers that often reflect entrepreneurs' and not the customers' perspective. Example: in designing a new eco-market you may assume that customers need shopping assistants. Is this a fact or just your generalized experience with different markets? With field research you may find out more.
- **Get the emotional distance from our initial business idea.** Entrepreneurship is about passion, but it is important not to change it for blindness. Entrepreneurs sometimes do not look for information about the customers. They can even reject feedback if they get some. Be open and learn to understand your customer.

Homework reflection & exercises

OBSERVATION

Step 1: Sit down in one of the rooms at your home.
What do you notice in this room? Write down in 1 minute as much as possible.

Step 2: Now focus only on ½ of the room.
What do you notice now? Write down in 30 seconds as much as possible.

Step 3: Now focus on the other ½ of the room.
What do you notice now? Write down in 30 seconds as much as possible.

Step 4: In which case did you notice more? Why?
Observation is strongly connected with our attention. If we focus on smaller parts at one point of the time, it will be more likely that we notice more. It is important to change our focus from time to time. Share your observations with other classmates and teachers.

INTERVIEW

You would like to plan sustainable events (or publish green news, design eco-friendly kids' toys, become a green builder) so you decided to arrange an interview with a person who has experience with that topic or product. In 5 minutes prepare a sample interview with questions. Conduct and document the interview. Share your findings in class.

Questions for a discussion with classmates and teacher:

- What did you do well?
- Which skills are important for an effective interview?
- What would you change the next time?
- How can you improve your interviewing skills?

REFERENCES

- Amaresan, S. (November 2022). *Qualitative Research Methods Every UX Researcher Should Know [+ Examples].* HubSpot. https://blog.hubspot.com/service/qualitative-research-methods
- British Library. Business and IP centre. (November 2022). *Qualitative and quantitative research for small business.* https://www.bl.uk/business-and-ip-centre/articles/qualitative-and-quantitative-research-for-small-business
- Communications for research. (November 2022). *Quantitative vs Qualitative Market Research: Which Method Is Best for You?* https://www.cfrinc.net/cfrblog/quantitative-vs-qualitative-market-research
- Grand Canyon University. 5 reasons why consumer research matters to your business. https://www.gcu.edu/blog/business-management/5-reasons-why-consumer-research-matters-your-business

Lighter capital. (November 2022). *What Is Consumer Research and Why Is It Important for Startups?* https://www.lightercapital.com/blog/what-is-consumer-research-why-is-it-important
- Lighter capital. (November 2022). *Key Strategies to Attract New Customers.* https://www.lightercapital.com/blog/key-strategies-attract-new-customers
- Nagy, T., Tacer, B. (2016). *Teaching entrepreneurship in schools: an experiential approach.* Ljubljana: STEP Institute.

KEY CONCEPTS – MAKING SENSE OF DATA AND UNDERSTANDING END USERS

At this stage we can start interpreting things and turn data into information and information into intelligence. The previous stage was intended only for gathering information and content. The purpose of the interpretation stage is to:

- create meaning from the contents – synthesis,
- achieve insights and learn something about customer needs,
- define opportunities for the development of a new product or service.

Source: https://www.ttclabs.net/insight/making-sense-of-data-disclosures-leveraging-context-in-design

LET'S GO DEEPER INTO THE TOPIC

Making sense of data

It represents the steps and issues that need to be taken to successfully complete a data analysis for the given business idea. The process is intended for timely and effective decision making based on the data gathered in the field. A step-by-step approach aids entrepreneurs in carefully analysing data and implementing results, leading to the development of smarter business decisions.

Source: http://querytreeapp.com/blog/make-sense-with-data-visualization/

One of the most common reasons why entrepreneurs value data is because it helps them gain a competitive advantage. By making sense of data it is possible to answer questions like:

- How do customers/users understand the value of the idea/product/service?
- How can we improve our product/service?
- How can we make it easier/faster for our customers to get what they need from us?
- How do we attract customers willing to spend their money on our product?
- How do we keep customers coming back to us instead of our competitors?
- How can the idea or business grow?

The process of making sense of data includes some or all the following tasks:

- problem definitions,
- data preparation,
- data visualization,
- statistics (in case of quantitative data),
- grouping methods.

Researcher behaviours in this phase include:

- analytical thinking,
- synthetic thinking,
- categorising,
- looking for patterns,
- listening,
- writing, drawing,

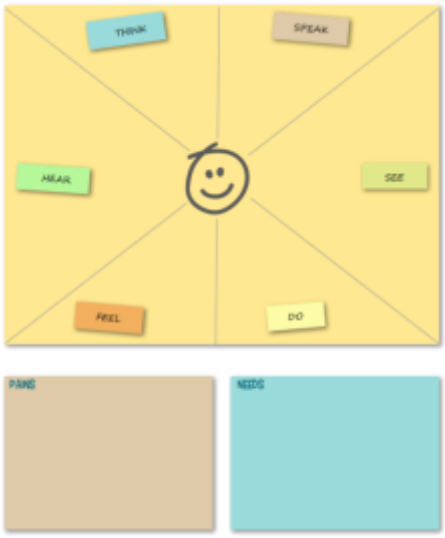
How to make sense of data gathered in the field?

1. Share the stories from the field: gather notes, photographs, and other materials, explain what happened during observation, interviews, be specific, write, draw, create digital board.

2. Identify patterns: Extract key meanings, set aside key information, define overarching thoughts and connecting theme, be systematic, do not skip anything.

3. Find themes: explore the similarities, differences, relationships, define categories, examine the relationships between various categories, divide into groups, reorganise several times.

4. Graphic presentation: prepare a visual presentation of the interpretations since a good graphic presentation can help us see challenges more clearly.



5. Create customer maps: A customer map reflects your understanding of the customer. It is an empathy map which helps you synthesize your observations.

- SAY: What are some quotes and defining words your user said?
- DO: What actions and behaviours did you notice?
- THINK: What might your user be thinking? What does this tell you about his or her beliefs?
- FEEL: What emotions might your subject be feeling?
- NEEDS: What are the needs of users?
- PAINS: What's not working for the users? Where do they have problems with your product or service)?

6. Think about opportunities: discuss the existing conditions and future possibilities and how might you create a bridge between the two, plan a step towards the next stage (ideation), rearticulate the problems or needs, form a sentence with, "*How might we …?*". Examples:

- How might we enable home cooks to easily find new ideas for healthy and eco meals?
- How might we encourage inhabitants to use more second-hand things?
- How might we invite parents to offer their children eco and sustainable toys?

Homework reflection & exercises

STEP 1: Observe the painting for a minute.

Illustration by James O'Brien. Source: https://www.sustera.org/

STEP 2: Write what you see on the painting.
STEP 3: Come up with at least 3 titles of the painting. Make sense of the painting.

Bring your observation and titles to the class and share with classmates and teachers.
Questions for a discussion:

- How did you decide on the titles?
- What are the possible hidden messages in the painting?
- What do you need in order to find the hidden messages of your customers?

REFERENCES

- Myatt, G. J. (2006). Making Sense of Data: A Practical Guide to Exploratory Data Analysis and Data Mining.
- Nagy, T., Tacer, B. (2016). *Teaching entrepreneurship in schools: an experiential approach.* Ljubljana: STEP Institute.

KEY CONCEPTS – GENERATING IDEAS

"Creative thinking inspires ideas. Ideas inspire change" – Barbara Januszkiewicz

Ideas are the key to innovation and are necessary for making any kind of improvement.

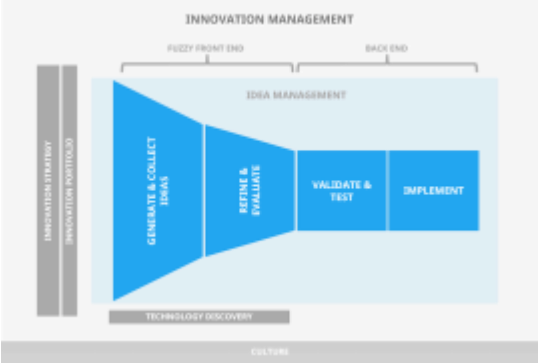
Source: https://www.maxpixel.net/Light-Bulb-Brain-Mind-Background-Idea-Generation-5985480

Idea generation is the process of creating, developing and communicating abstract, concrete or visual ideas. The purpose of idea generation is improving what already exists or coming up with something new. The ability to create and develop new ideas allows entrepreneurs to stay relevant and implement positive changes in the organization. Idea generation involves gathering ideas, research, testing, editing, revising and implementing the plan.

LET'S GO DEEPER INTO THE TOPIC

GENERATING IDEAS

Ideas alone don't make innovation happen; a systematic process for managing those ideas is also needed. The point of ideation is about generating lots of ideas as well as paying attention to the quality of those ideas.Ideas are the first step towards making improvement. New ideas can help individuals to move forward when stuck with a task, unable to solve a certain problem or going on a journey exploring a new opportunity. When it comes to the organization, generating and collecting new ideas is a great way to uncover creative knowledge and consequently improving the way the organisation operates. Economies depend on innovation to drive growth and increase well-being. Innovation creates new technologies and businesses.



Idea generation is at the front part of the idea management funnel and it focuses on coming up with possible solutions to problems and opportunities.

Source: https://www.viima.com/blog/idea-generation

Researcher behaviours in this phase include:

- open, creative thinking,
- unrestrained thinking,
- listening to other people's idea,
- communicating ideas in a way others can understand (drawing, visualising, writing).

Below are some techniques for encouraging idea generation.

1. Reverse brainstorming

Brainstorming is the generation of ideas to identify problem-solving methods, reverse brainstorming starts with thinking about the causes of that problem. This can often be more efficient because by finding potential causes, it is possible to work proactively to resolve or prevent the cause of the problem. Teams can use it to improve products and services.

2. Forced relationships

The method forces a creation of a connection between two random, unrelated items. It encourages innovative thinking and possibly leads to the development of a new product.

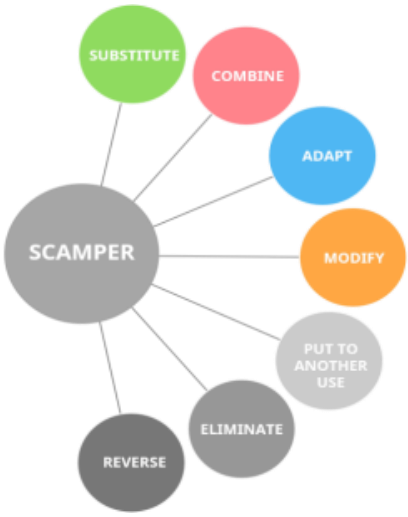
3. Storyboarding

Firstly, a storyboard is developed by finding pictures, quotes and other visual information associated with the topic of the brainstorming. Then, these items are arranged to create a narrative and notes are added to help explain the progression of the ideas. Also, physical items can be added to the board.

4. S.C.A.M.P.E.R.

M. Michalko analysed thinking styles of famous people: Einstein, da Vinci, Darwin, Mozart etc. He collected and published different creativity techniques. One of them is S.C.A.M.P.E.R. that encourages critical thinking and considering creative approaches from several angles.

A video about this method: https://www.youtube.com/watch?v=G8w0rJhztJ4.



SCAMPER questions:

- *What procedure can I substitute for my current one?*
- *What can I combine?*
- *What can I adapt from someone else?*
- *How can I modify or alter my way of doing this?*
- *What can I magnify or add to my way of doing this?*
- *How can I put my challenge to other uses?*
- *What can I eliminate from the way I do this?*
- *What is the reverse of my method?*
- *What rearrangement might be better*

Source: https://www.viima.com/blog/idea-generation

5. Group sketching

Each group member passes around a piece of paper to sketch something related to a central concept or idea. Once the entire group has completed sketching, the images are discussed and connections are formed between them.

6. Analogy Thinking

Often one solution to a problem or opportunity can be used to solve another problem. Analogy thinking is a technique for using information from one source to solve a problem in another context. It can be used for analysing a successful business, identifying what makes it great, and then applying those same principles for your business (an example: "Uber for [insert industry here]").

Homework reflection & exercises

Research six thinking hats creative technique by Edward de Bono and apply it to your business challenge.
https://www.debonogroup.com/services/core-programs/six-thinking-hats/

REFERENCES

- Indeed. (November 2022). *Career development: 18 Idea Generation Techniques That Don't Include Brainstorming.* https://www.indeed.com/career-advice/career-development/idea-generation-techniques-besides-brainstorming
- Management notes. (November 2022). *Idea generation – methods of generating new ideas for entrepreneurs.*
- https://www.managementnote.com/methods-of-generating-new-ideas-for-entrepreneurs/
- Nagy, T., Tacer, B. (2016). *Teaching entrepreneurship in schools: an experiential approach.* Ljubljana: STEP Institute.
- VIIMA. (November 2022). *What is Idea Generation? – Definition, Techniques and Success Factors.* https://www.viima.com/ blog/idea-generation

KEY CONCEPTS – PROTOYPING

It is very important that visualisation of ideas and concepts starts to grow from 2D to 3D perspective. Prototyping sessions are connected to the product as well as service. One thing is common for different descriptions of what prototyping is: **a prototype is an unfinished and physical test version of a product, a service or a process and prototypes may be used in order to develop, test and communicate ideas and concepts.**

Making a prototype by hand is a great way to start bringing the idea, service, product to life. There are no rules and it is great to experiment.

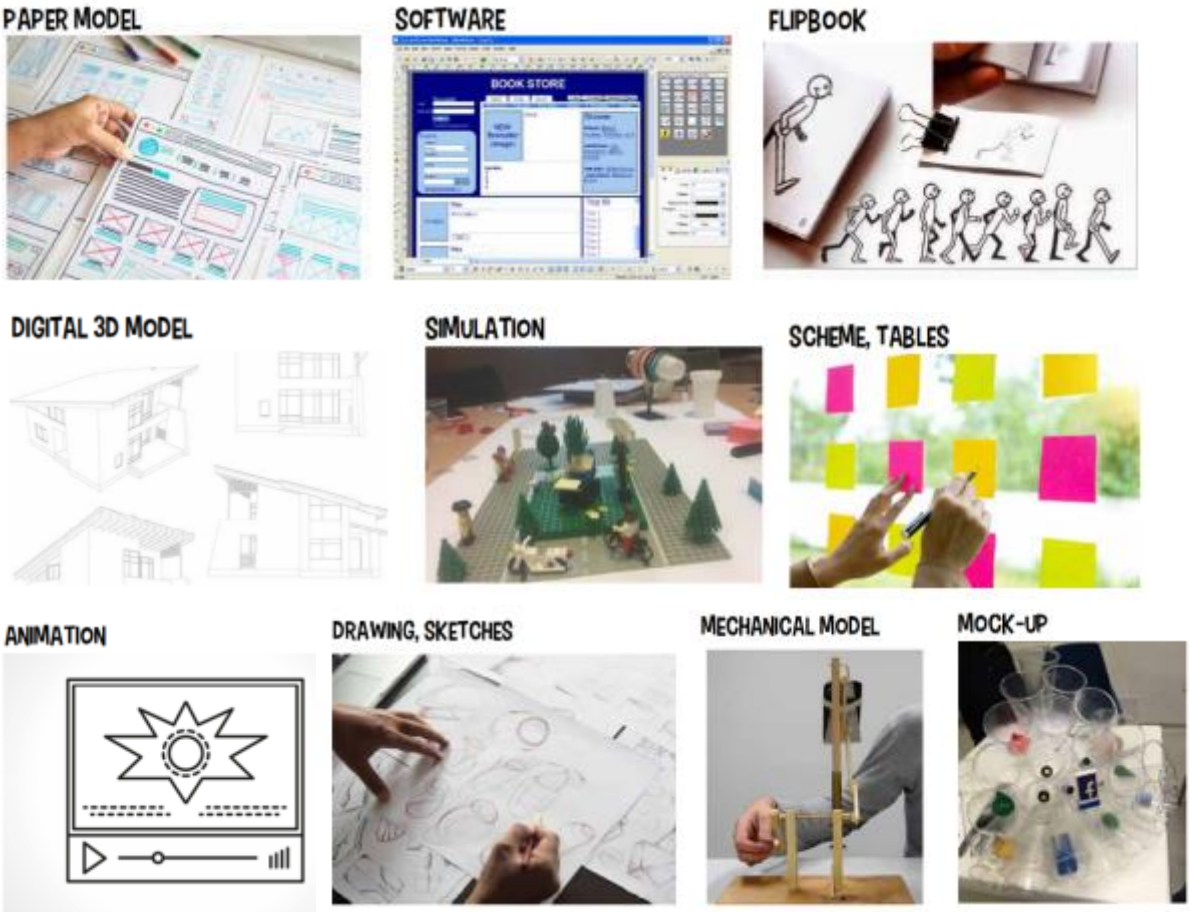
LET'S GO DEEPER INTO THE TOPIC

Prototyping is an essential step in the development of a digital or physical product. The process converts the idea into a concept that has a physical structure. A prototype is a draft version of a product that allows business teams to explore ideas, test viability, validate assumptions and show the intention behind a feature or the overall design concept to users/customers before investing time and money into its development. A prototype can be anything from paper drawings (low-fidelity) to something that allows click-through of a few pieces of content to a fully functioning site (high-fidelity).

Prototyping has several benefits:

low-resolution prototypes show the first visualization & design,
it provides the opportunity for developing and testing ideas in a tangible way,
it enables showing and refining the functionality of the design,
it gives opportunities to test the performance of various materials,
it makes it easier to unfold and test ideas during the early stages (it saves resources),
it enables exploration if the ideated product is viable for mass production,
it allows to continually develop, change the ideas with the testing – prototypes can reveal aspects that might not come to mind otherwise or cannot be put in words,
a physical representation of the idea enables a common framework for understanding what the concept actually entails and the experience of it,
it helps to describe the idea, product or service more effectively,
it encourages others to take the idea and its creator more seriously.

There are different prototypes:



SOME TIPS FOR PROTOTYPING SESSIONS:

- **START BUILDING.** Even if you aren't sure what you're doing, the act of picking up some materials (paper, tape, and found/random objects are a good way to start!) will be enough to get you going.
- **FOCUS ON THE STORY** – The aesthetics are not important.
- **THE SIZE IS NOT IMPORTANT** - The concept of a new house does not build a house but shows a model (e.g. Use of LEGO bricks instead of the real ones ...).
- **STOP WASTING TIME** on details.
- **DON'T SPEND TOO LONG ON ONE PROTOTYPE.** Move on before you find yourself getting too emotionally attached to any one prototype.
- **DON'T BE IN LOVE** with your idea – avoid emotional attachment
- **DON'T MAKE A FINAL DECISION** about the product/service before the prototype is completed
- **AVOID DESTRUCTIVE THINKING** – For example, »It's impossible, it's not for us ...«
- **BUILD WITH THE USER IN MIND.** What do you hope to test with the user? What sorts of behaviour do you expect? Answering these questions will help focus your prototyping and help you receive meaningful feedback in the testing phase.
- **IDENTIFY IMPORTANT TOUCH POINTS,VARIABLES.** Identify what's being tested with each prototype. A prototype should answer a particular question when tested.

Source: Nagy, T., Tacer, B. (2016). *Teaching entrepreneurship in schools: an experiential approach.*

Homework reflection & exercises

Exercise 1

Imagine: Tomorrow is your schoolmate birthday. Make a creative present or at least a nice memory of the day at school. Find different materials in your room that bring you crazy ideas. Choose not more than 3 and come up with a present. Give it to the schoolmate.

Exercise 2

Look for a website you visit often. Try to analyse the user perspective and find opportunities for improvement or ideas for new content/service. After the analysis, start prototyping the new website upgraded with your ideas and improvements. Do not complicate, do it with pen and paper. You have 5 minutes for analysing and 5 min for prototyping. Present it a school.

REFERENCES

- Entrepreneur Europe. (November 2022). *Small Business Encyclopedia: Prototype.* https://www.entrepreneur.com/encyclopedia/prototype
- Nagy, T., Tacer, B. (2016). *Teaching entrepreneurship in schools: an experiential approach.* Ljubljana: STEP Institute.
- University of Copenhagen. (November 2022). *Method: Rapid prototyping.* https://innovationenglish.sites.ku.dk/metode/rapid-prototyping/

PRACTICAL ACTIVITIES

Activity: Thinking of sustainable solutions with the six thinking hats

General information	
Name	**Thinking of sustainable solutions with the six thinking hats**
Purpose of the activity	Encourage creativity and critical thinking in students to generate sustainable solutions to problems related to the Sustainable Development Goals (SDGs).
Target group	VET students
Group briefing	Teachers will help learners to identify learner outcomes.
Estimated type and size of the group	Ideally a group of more than 10 and less than 25 students. It is recommended for students with the ability to work autonomously and with a high level of understanding and reflection.
Learning outcomes/ objectives	Identify and describe the sustainable development objectives To put into practice different techniques for the generation of ideas.
Activity outline	
Goal	to generate a sustainable business idea that aligns with the Sustainable Development Goals. To do this, we'll analyze the idea using the Six Thinking Hats technique, which includes considering the idea from different perspectives. This will allow us to develop a business concept that is not only profitable but also contributes to creating a better world
Duration	3 hours

Task description	1. Introduce students to the SDGs and explain what they are and why they are important. 2. Divide students into groups of four and assign them an issue related to the SDGs. 3. Explain Edward de Bono's six thinking hats theory to students. Introduce each of the six hats and explain their function: a. White hat: focuses on facts and objective information. b. Black hat: focuses on negative aspects and risks. c. Yellow hat: focuses on positive aspects and opportunities. d. Red hat: focuses on emotions and feelings. e. Green hat: focuses on creativity and idea generation. f. Blue hat: focuses on organization and planning. 4. Ask students, in groups, to use the brainstorming technique based on the six hats theory to think about generating sustainable solutions to the assigned problem. a. First the groups will start with the white hat (facts and objective information), they will conduct a short research to present the researched information on the given issues and Sustainable Development Goals. b. After presenting the researched information, the groups can move on to the next hat: the green hat (creative and innovative thinking) it's time for brainstorming! This is the time to come up with as many ideas as possible in a period of 15-20 minutes. The ideas have to be related to the research done in the white hat. <u>Remember the rules of brainstorming:</u> a. No criticism or evaluation b. Quantity over quality c. Build on each other's ideas d. Encourage wild ideas e. Stay focused on the topic c. After generating all possible ideas, it's time to start the selection process. To do this, we'll analyze each idea using the Six Thinking Hats technique, which includes considering the idea from different perspectives: yellow (positive aspects), black (negative aspects), red (emotional aspects), and so on. We'll then synthesize and combine ideas to find the most impactful solution. The next hat is Yellow: the yellow hat (optimistic and positive thinking). It assesses the favorable elements of the concepts, including their level of originality, viability, practicability, and suitability within the specific circumstances. d. Then, the groups can move on to the next hat: the black hat (critical and negative thinking). Here, they can identify the potential obstacles and challenges that might arise in trying to implement the ideas and solutions to the context. e. Before the last hat, the groups can move on to the next: the red hat (emotions and feelings). This will involve discussing how the assigned problem makes them feel and how it affects the community and environment. f. Finally, the group can use the blue hat (reflective and analytical thinking) to evaluate the ideas and select the most promising ones to pursue. During this process, they can also identify which other Sustainable Development Goals would be impacted by each idea.

	5. The six-hat approach can be a useful method for generating sustainable solutions to complex problems by encouraging diverse perspectives and ways of thinking. This process allows groups to devise solutions that are informed by research and aligned with the principles of sustainable development.
Remarks	You can create a slide with each color of hat and go through the process with the students.
Supporting materials (materials needed for the lecture)	
Bono six thinking hats: https://www.mindtools.com/ajlpp1e/six-thinking-hats Bono six thinking hats: https://www.debonogroup.com/services/core-programs/six-thinking-hats/ sustainable development goals: https://sdgs.un.org/goals	

Recommendations (tips for trainers)

Please come prepared with visual material related to the Sustainable Development Goals.

For the first hat (white), internet access and computers will be necessary.

For all other hats, we recommend using paper, Post-its, and marker pens. The aim of the final hat is to choose the best business idea. If a group has multiple ideas, they can use the NUF table to make a selection.

CHAPTER 3
GREEN IMPLEMENTATION

KEY CONCEPTS

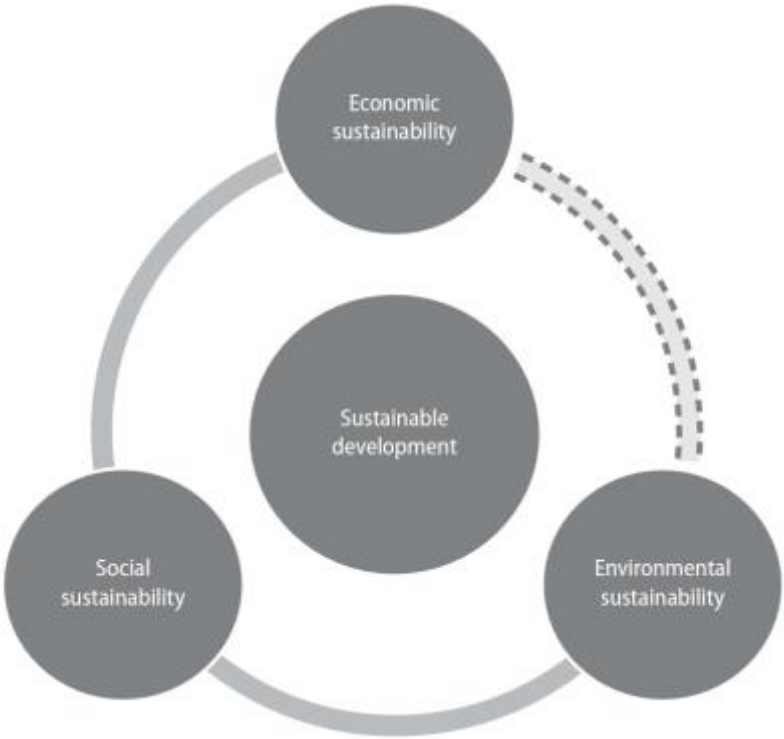
Sustainable development

Sustainable development is a concept that appeared for the first time in 1987 with the publication of the Brundtland Report, warning of the negative environmental consequences of economic growth and globalization. Sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Many of the challenges facing humankind, such as climate change, migration, water scarcity, inequality and hunger, can only be resolved at a global level and by promoting sustainable development.

The Brundtland concept of sustainable development **is based on three pillars:**

- The **Social sustainability** referring to values that promote equality and respect for individual rights.
- The **Economic sustainability** related to a companies’ ability to contribute to economic development and sustainbale growth.
- The **Environmental sustainability** founded on a commitment to protect the environment by reducing risks and measuring the environmental impacts of companies' activities.



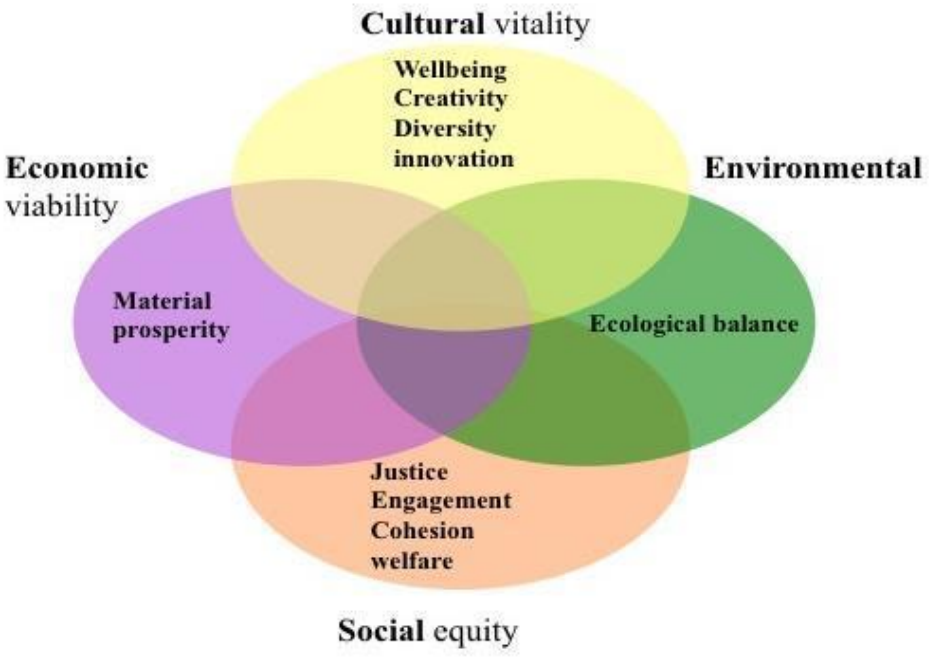
Source: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/368361468313515918/main-report

Environmental sustainability
At the environmental level, sustainability prevents nature from being used as an inexhaustible source of resources and ensures its protection and rational use. Aspects such as environmental conservation, investment in renewable energies, saving water, supporting sustainable mobility, and innovation in sustainable construction and architecture, contribute to achieving this environmental sustainability on several fronts.

Social sustainability
At the social level, sustainability can foster the development of people, communities and cultures to help achieve reasonable and fairly distributed quality of life, healthcare and education across the globe. The fight for gender equality, especially in developing countries, is another aspect which in coming years will form the basis of social sustainability.

Economic sustainability
Sustainability focuses on equal economic growth, that generates wealth for all, without harming the environment. Investment and an equal distribution of the economic resources will strengthen the other pillars of sustainability for a complete development.

A fourth pillar can be added, i.e. the **Cultural Pillar**, promoted by UNESCO in 2002, since culture, arts and the humanities are drivers of social values, including cohesion, solidarity, fundamental freedom, human settlements, the contribute to global economic sustainability and are as important as the environment to humankind because of the heritage it represents



Source: Makrakis, V. (2018). Developing and Validating a Sustainability Justice Instrument to Transform Curriculum, Learning and Teaching. University of Crete, https://www.researchgate.net/publication/324984185_Developing_and_Validating_a_Sustainability_Justice_Instrument_to_Transform_Curriculum_Learning_and_Teaching

LET'S GO DEEPER INTO THE TOPIC

When designing circular business ideas and plans we always base the concepts on the sustainability, fostering social, economic, environmental and cultural balance in society, which is the foundation for well-being of the people, the animals and the earth around us and will lead to healthy and happy communities.

Source: Vassilios, M. (2018). Developing and Validating a Sustainability Justice Instrument to Transform Curriculum, Learning and Teaching. https://www.researchgate.net/publication/324984185_Developing_and_Validating_a_Sustainability_Justice_Instrument_to_Transform_Curriculum_Learning_and_Teaching

As a part of its commitment to sustainable development, in 2015, the United Nations approved the 2030 Agenda, a comprehensive framework for guiding development progress and recognising the simultaneous need for growth, prosperity, peace, environmental protection, and reducing inequality. The agenda contains the Sustainable Development Goals (SDGs), a call to action to protect the planet and guarantee the global well-being of people. These common goals require the active involvement of individuals, businesses, administrations and countries around the world. These goals should also be reflected and addressed in all design thinking and business development processes (see https://sdgs.un.org/goals):

Source: https://www.un.org/sustainabledevelopment/news/communications-material/

A major tool to be used is be Osterwalder's Business Canvas, enhanced by an evaluation process to assess the impact of all our activities – the ecological and the carbon footprints, the social, environmental, economic and cultural effects of our plans.

The following tools will be easy to use by teachers and students at all levels in vocational education and training (VET) in Europe. Depending on the level of the students and the assistance provided by teachers, mentors or peers (e.g. from local companies and policy makers) the business plans can be designed in a simple or more complex forms. They can be designed for micro-enterprises, social or for-profit businesses, SMEs or maybe there are unique geniuses in the classroom with the big idea for the next successful circular economy enterprise.

The activities can be carried out in shorter sessions (2-4) hours or can be part of project events or competitions. The tasks are usually highly motivating and include also weaker students, especially if game-based learning will be used to develop ideas and concepts. After each ideation and business modelling phase there should be sufficient time for the student teams with their mentors to pitch their business and tell the stories of their businesses and motivate the students to pitch their ideas to local enterprises.
The tools can also be used to assess the sustainability and circularity of existing business models.

Learning outcomes:

- Understanding the concept of sustainability and sustainable development;
- Understanding the importance of biodiversity, animal welfare and care for the earth;
- Appreciating the concepts of social welfare, inclusion, culture;
- Using design thinking approaches;
- Applying tools, e.g. Business Canvas to design circular and sustainable enterprises based on needs;
- Strengthening storytelling and communicative skills;
- Acquiring STEAM skills in the process – Science – Technology – Engineering – Arts – and Mathematics through the development of business concepts;
- Developing sustainable and circular entrepreneurial mindsets.

Ideation and circular design thinking

Before starting with the ideation exercise the concept of circularity should be clarified.

Source: EU Parliament: https://www.europarl.europa.eu/news/en/headlines/economy/20151201STO05603/circular-economy-definition-importance-and-benefits
and Porto Protocol: https://www.portoprotocol.com/circular-economy-as-a-way-of-increasing-efficiency-in-organizations/

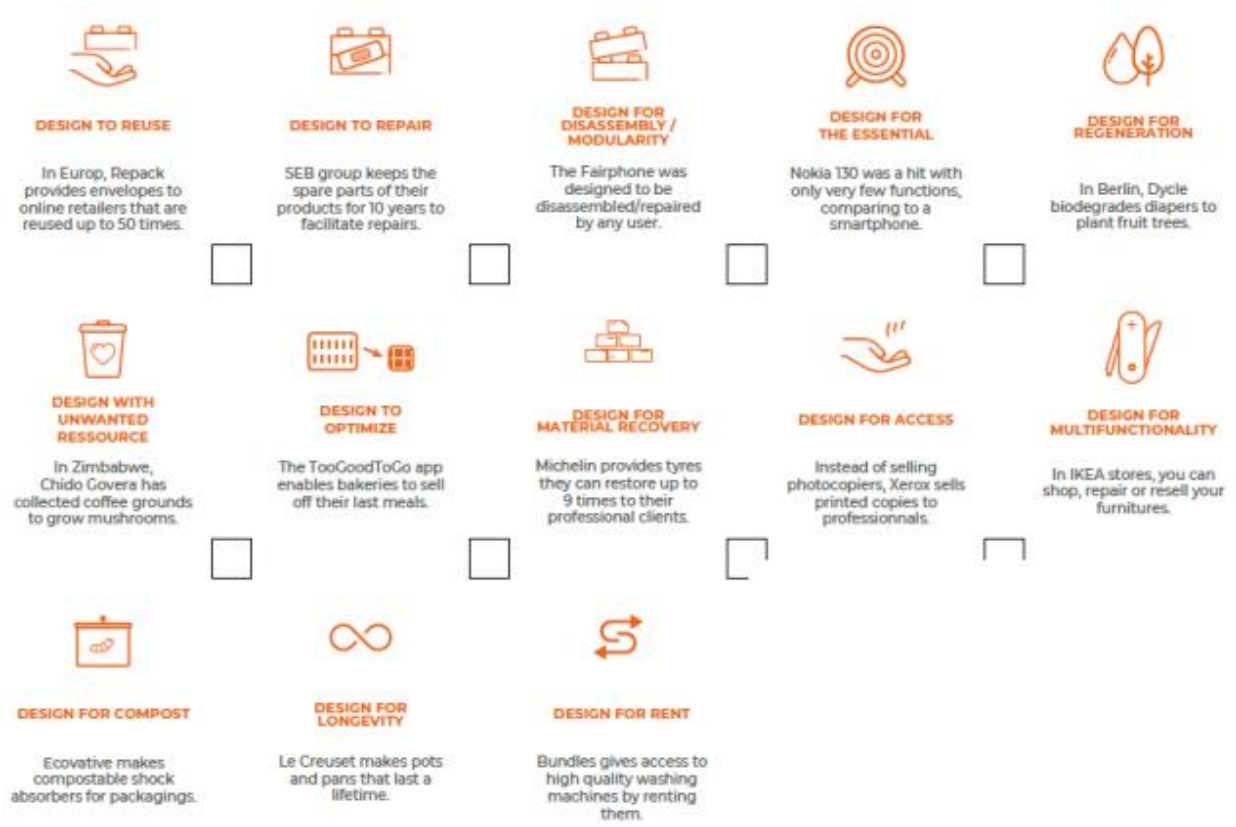
As can be seen in the infographic many activities associated with circular economy are not purely circular. Only when we design products, processes or services from the "cradle to the cradle" without exploiting new raw materials, the processes are circular.

When we remanufacture or recycle products we already exploited the earth taking valuable raw materials and after one or more recycling processes materials will be dumped into the earth or remanufactured, e.g. plastic bottles, mobile phones. Concepts can also be developed for distribution of goods, saving resources, repair of electronic products instead of throwing them away, collection of trash and recycling. The students should look critically at these processes and become detectives, researching what happens to plastic, batteries, washing machines, waste food, which we throw away.

Excellent videos and materials for students have been designed by Ellen Macarthur Foundation: https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview. They also developed a MOOC freely available on https://www.futurelearn.com/courses/circular-economy-the-big-idea, with motivational material appropriate for teachers and VET students alike.

Circularity by design: Using design thinking processes

As you see in the infographics above circular processes are in most cases not 100% circular and sustainable, but contribute to make the world greener. In the Growing Green project we strive to become 100% circular. As you can see in the examples below, if we build sustainability and circularity into our design processes we make a huge leap towards a greener and a healthier planet.

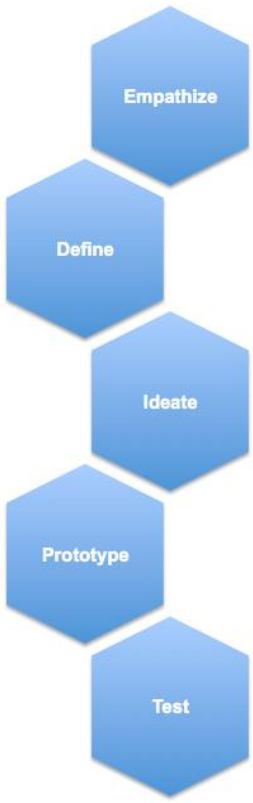


Source: Circulab: https://circulab.academy/circular-economy-tools/ (Other useful tools and resources can be found at this website.)

To get started with designing a new, repurposed, recycled, adapted circular product, service or process a good tool is the design thinking process. The 5-stage model stage model was developed by the Hasso-Plattner Institute of Design at Stanford University and has been used by many organisations.

See https://web.stanford.edu/~mshanks/MichaelShanks/files/509554.pdf to get an overview and https://dschool.stanford.edu/resources/getting-started-with-design-thinking to find resources and a facilitator guide to implement the process in the classroom.

The process consists of five stages. Other models have added stages, e.g. to inspire in order to identify a challenge and activate/motivate teams and a final stage to implement.



The emphatize stage develops a deep understanding of the challenge and of the needs of the target groups and audiences of our product.

In the define stage we clearly describe the problem we want to solve and the needs we want to fulfil.

The ideate stage is the most creative phase where we brainstorm for all kinds of crazy, creative and sustainable ideas, gather and structure these ideas.

Then we design **the prototype,** creating a rough draft or model of our ideas and then **test** this with peers, other students, teachers and the representatives of the target groups we have identified.

Source of the photo: https://commons.wikimedia.org/wiki/File:Processus_de_Design_Thinking_selon_d.school.png

For each of these stages creative tools can be used to make the search for circular ideas needed motivating. Sticky notes can be used or Lego® Serious Play® methodologies, the learners can dive into research and/or field exploration, interviews with policy makers, stakeholders, companies could be organised. Ideas for lessons will be elaborated below and models for game-based learning will be provided in Result 2.

To support digitalisation process platforms like Miro, Mural, Padlet, Mentimeter, Canva and other emerging applications can be used for ideation processes. These platforms offer a variety of templates to facilitate design thinking processes.

Moreover, these digital platforms can be used to foster cooperation and co-design of products, services and solutions for a circular and greener world between the schools in the European network and beyond.

Be curious, inquisitive and think different to create a greener and brighter future for yourselves!

Building bold circular and sustainable businesses

Growing green entrepreneurship is another major objective of the Growing Green project. Even though many our students wish to find secure and exciting jobs, entrepreneurial mindsets can be an asset for the employer. Beyond this, our students acquire the skills to design green products and services and turn them into business models, which can be implemented and can be used to attract financing.

Instead of writing a linear business plan with many words a more intelligent way to design a business plan is the Business Canvas model, developed by Alex Osterwalder (see https://www.alexosterwalder.com) and

adapted in many ways. The Canvas model is free to download from many sites or can be used online via strategyzer.com.

The Business Canvas is a powerful tool since it shows how thinks are connected and, thus, develops systemic thinking. It is best to work in small teams and start filling the gaps on the Canvas. At the beginning it may be not so easy but in team discussions students quickly find out the connections of the different prompts of the Canvas. Designing the business plan will also be easier following the design thinking and ideation phase above. If students have problems finding the right ideas and words Lego® Serious Play® methodologies can be used, building each stage in the Canvas. When the 3-D models are built it is easy for the learners to add meaningful terms.

Circulab adapted the Canvas to circular economy business development. They provide good presentations and many tools for teachers and students to support the design of sustainable and circular businesses.

THE CIRCULAR DESIGN GUIDE

WORKSHEET

Business Model Canvas

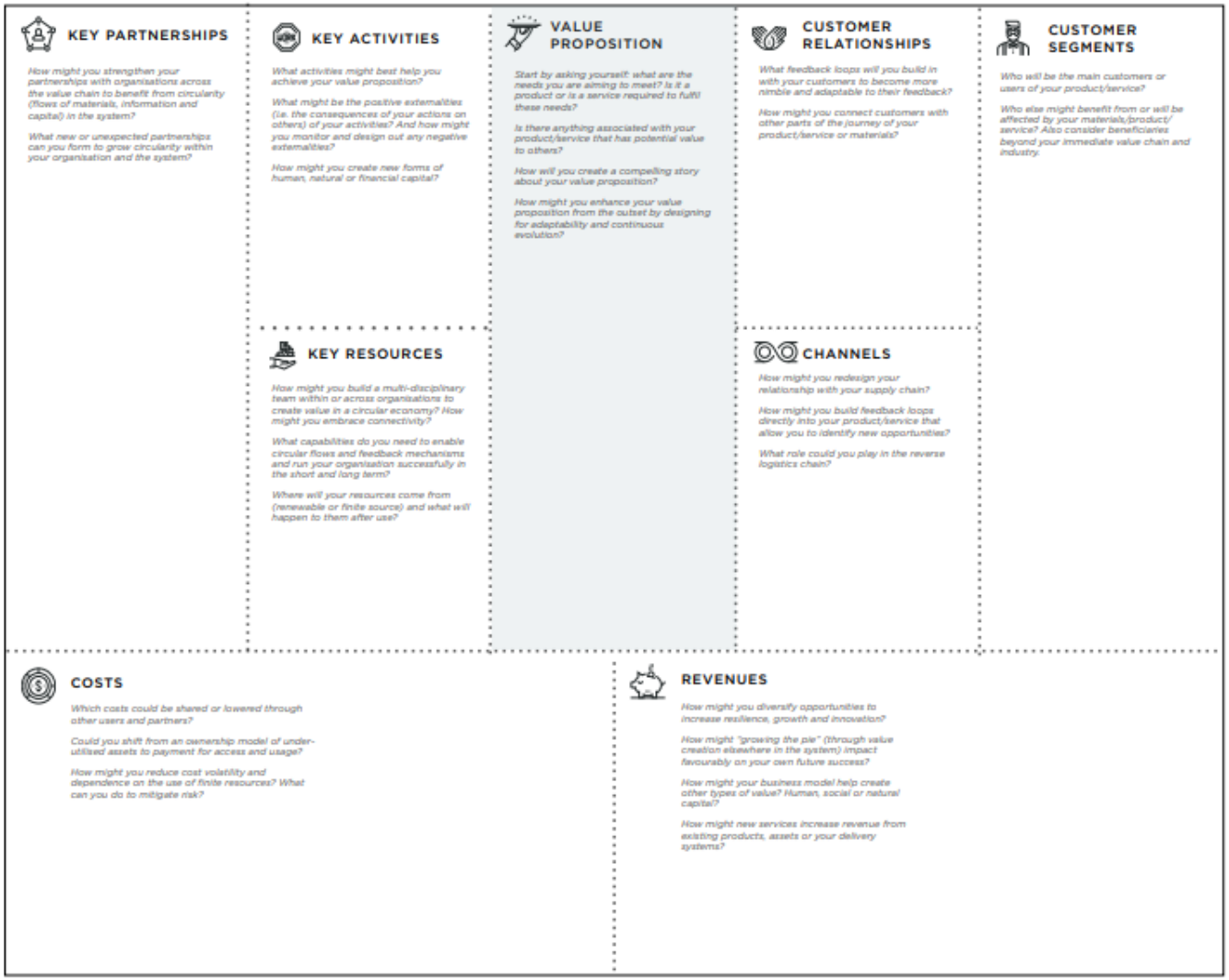
A3 or bigger

The business model canvas has been developed by Osterwalder & Pigneur (strategyzer.com). You might have filled one of these in before - here we have added some prompts and questions that you might find helpful in the context of the circular economy.

If you need more space, create your own canvas using post-its.

www.circulardesignguide.com

IDEO



Source: https://www.circulardesignguide.com/resources - https://emf.thirdlight.com/link/tzb3y1er2tg1-iebwi8/@/preview/1?o

The Growing Green teams can start anywhere on the Canvas, but it is useful to start with the **Value Proposition** for the customers and for the earth. A good ideation process makes it easy to make this value proposition, since you already looked at the needs of your target audience. Think always circular and green and think how your values can be adapted to meet the needs. Also consider how your value proposition will meet UN's sustainability goals. You could also provide information on the eco- and carbon footprint you make with your offers or the reduction of the impact on the earth's resources you make.

Following the Value Proposition it will be easy to define the **Customer Segments**, the **Channels Segments** how to reach your customers and then move on to **Key Activities** and **Key Resources** (staff, skills, financing, property, etc.) you need to produce your product or deliver services. Stakeholders, policy makers, friends may be important for your new enterprise: Identify them under **Key Partnerships**. Then a crucial part of the exercise is to identify all the income you expect, the **Revenues** and the **Cost**.

Always reflect the aspects of circularity and sustainability, which means that your enterprise must be financially and socially viable, inclusive and good for the earth.

The power of storytelling

Once you have created your circular Business Canvas, develop a great story of your value proposition, what you can offer to your customers and how you will change the world, making it greener and avoiding exploiting our earth further. Prepare a pitch, presenting your idea to an audience, in a persuasive way. You need the skills to tell the story of your company with passion and empathy to raise money from sponsors, investors and maybe participate in entrepreneurship competitions or hackathons, which run in nearly all European countries.

Some tips to become a good storyteller and pitcher:

- Be yourself, be authentic, talk with passion!
- Structure your story – pitches must be short – and practice!
- Present the challenge!
- Show your solution and how it will make a difference for the planet!
- Tell a bit about your plans to be sustainable, also how to create revenues, which can be money, but also social benefits for the community.

You can also provide some slides or make an infographic or poster presentation. And/or make a short video with your pitch. The more you practice, the more professional you get.

It is nice to pitch as a team – then be sure you assign the roles in the team clearly, based on the key competences and skills of each team member.

Some more tips for pitching start-ups can be found here: https://www.coxblue.com/17-things-you-need-to-consider-when-pitching-your-startup/.
Some circular business stories can be found here: https://www.greenbiz.com/article/5-circular-economy-startups-weve-got-our-eyes.
And some more ideas for green circular start-ups: https://mattward.io/14-ways-to-start-a-sustainable-circular-economy-startup/ and here: https://nordicstartupnews.com/linear-circular-six-green-startups-will-change-economy/.

Activity 1: The circular business idea

General information	
Name	**The circular business idea**
Purpose of the activity	The aim is to generate circular and sustainable business ideas, using design thinking processes
Target group	VET students from 15 – 25; preparation, materials, approaches, pace, length can be adapted based on the background of the students to ensure inclusion.
Group briefing	The teacher presents the concept of design thinking Brainstorming session to gather ideas (2 school hours) Empathize session: Use brainstorming and sticky notes to elaborate benefits for target groups (2 school hours) Define the business idea and what is needed (1 school hour) Ideation process: Brainstorming session to gather ideas for circular economy businesses (2 school hours) Testing with peer, teachers, locals (2 school hours) Structuring the ideas can also be done as homework.
Estimated type and size of the group	School classes with 15-25 students; the students should work in teams of 3-4
Learning outcomes/ objectives	• Understanding design thinking processes • Acquiring background information on circular economy • Applying design thinking and brainstorming tools • Designing a business idea using the process tool • Learning story-telling techniques • Promoting the concept in teams • Developing STEAM skills – science, technology, engineering, arts/humanities and mathematics to generate and present the ideas • Assess the sustainability of the ideas using SDG, footprint and circularity tools
Activity outline	
Goal	The overall aim of this unit is to foster design thinking mindsets in developing innovative circular and sustainable business idea
Duration	See above: The course can be taken in several steps and integrated into the school schedule or can be carried out on one day during project weeks.
Task description	The teacher(s), facilitators prepare an introductory presentation on design thinking processes.

	They take the students through the processes and facilitate the design thinking processes step by step. Finally, they coach the students in presenting the ideas as passionate stories or in short pitches.
Remarks	The lessons can be carried with sticky notes, a sufficient number in different colours for each design stage. The facilitator structures each stage. Instead of sticky notes the facilitator could use Lego bricks for some stages, i.e. a small bag of mixed bricks with metaphorical meaning, and let the students build their ideas.
Supporting materials (materials needed for the lecture)	
A good infographic is provided by the EU Parliament https://www.europarl.europa.eu/news/en/headlines/economy/20151201STO05603/circular-economy-definition-importance-and-benefits) and further defined under the Porto Protocol: https://www.portoprotocol.com/circular-economy-as-a-way-of-increasing-efficiency-in-organizations/. Excellent videos and materials for students have been designed by Ellen Macarthur Foundation: https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview. They also developed a MOOC freely available on https://www.futurelearn.com/courses/circular-economy-the-big-idea, with motivational material appropriate for teachers and VET students alike. Circulab: https://circulab.academy/circular-economy-tools/. Design thinking: https://web.stanford.edu/~mshanks/MichaelShanks/files/509554.pdf to get an overview and https://dschool.stanford.edu/resources/getting-started-with-design-thinking to find resources and a facilitator guide to implement the process in the classroom.	

Recommendations (tips for trainers)

The aim is to motivate and encourage the students to think out of the box, to develop crazy ideas, which make our world brighter and greener and our economy brighter.

The tools for design thinking will then be introduced to develop the ideas and structure ideas to turn them later into sustainable business ideas.

Encouragement, openness, acceptance of all crazy ideas and then coaching to structure and present the ideas with passion, authenticity and empathy.

Activity 2: Building a bold circular enterprise

General information	
Name	**Building a bold circular enterprise**
Purpose of the activity	The aim is to design strong circular and sustainable business plans and to foster circular entrepreneurial mindsets. The aims and learning outcomes link to the EntreComp Framework
Target group	VET students from 15 – 25; preparation, materials, approaches, pace, length can be adapted based on the background of the students to ensure inclusion.
Group briefing	The teacher presents the concept of Osterwalder's Business Canvas, adapted to the circular economy Brainstorming session to gather ideas (2 school hours) Start to complete the fields of the business canvas: Use brainstorming and sticky notes to elaborate benefits for target groups (2 school hours) A model canvas could be completed with the whole class using sticky notes to fill the different areas of the Canvas (2 school hours) Assessing and evaluating the different fields with regard to sustainability and circularity.
Estimated type and size of the group	School classes with 15-25 students; the students should work in teams of 3-4
Learning outcomes/ objectives	• Understanding business planning and the business canvas concept • Acquiring background information on how to develop a business plan • Analyzing the different areas on the canvas • Gathering ideas • Calculating revenues and costs • Developing STEAM skills – science, technology, engineering, arts/humanities and mathematics to generate and present the ideas • Assess the sustainability of the business concept using SDG, footprint and circularity tools
Activity outline	
Goal	The overall aim of this unit is to foster circular entrepreneurial mindsets in developing innovative circular and sustainable business plans.
Duration	See above: The course can be taken in several steps and integrated into the school schedule or can be carried out on one day during project weeks.
Task description	The teacher(s), facilitators prepare an introductory presentation on the circular business canvas concept. They take the students through the processes and facilitate the development of the different fields of the business plan/canvas step by step.

Remarks	The lessons can be carried with sticky notes, a sufficient number in different colours for each design stage. The facilitator structures each stage. Instead of sticky notes the facilitator could use Lego bricks for some stages, i.e. a small bag of mixed bricks with metaphorical meaning, and let the students build the different fields of the canvas..
Supporting materials (materials needed for the lecture)	
Alex Osterwalder's Business Canvas concept (see https://www.alexosterwalder.com) Tools on strategyzer.com Circulab's Business Canvas (https://circulab.academy/circular-economy-tools/circular-canvas-business-models/), adapted to circular economy business development.	

Recommendations (tips for trainers)

The aim is to motivate and encourage the students to think out of the box, to develop crazy ideas and turn those into practical business plan to make our world brighter and greener and our economy brighter.

The tools for business planning will then be introduced to develop the ideas and structure ideas to turn them later into sustainable business plans..

Encouragement, openness, acceptance of all crazy ideas and then coaching to structure and present the plans with passion, authenticity and empathy.

Activity 3: Storytelling and pitching the circular business ideas

General information	
Name	**Storytelling and pitching the circular business ideas**
Purpose of the activity	There are many investors, who would be happy to fund young people with bold and innovative circular business ideas and plans. The aim is to develop communicative and rhetorical skills in the students, which help them to disseminate their green ideas and attract awards and finally funding.
Target group	VET students from 15 – 25; preparation, materials, approaches, pace, length can be adapted based on the background of the students to ensure inclusion.
Group briefing	The teacher presents techniques and tips for storytelling and pitching business ideas with examples. The students find further examples. Based on their business idea and business plan the students develop the story of their business idea. They practice to pitch the idea before an audience. They make videos and disseminate their ideas.

	They evaluate each other's pitch based on impact and sustainability. They continuously improve. The school/teachers encourage the students to pitch before audiences and participate in circular entrepreneurship competitions.
Estimated type and size of the group	School classes with 15-25 students; the students should work in teams of 3-4
Learning outcomes/ objectives	• Acquiring key competences in rhetoric, storytelling and pitching • Acquiring skills to present • Applying the skills • Acquiring skills to make videos • Acquiring marketing skills • Developing networking skills to promote their ideas • Expanding networking skills with local stakeholders • STEAM skills
Activity outline	
Goal	The overall aim of this unit is to foster circular entrepreneurial mindsets through empowering students to push their ideas forward and develop stakeholder networks.
Duration	About 2 hours following the business canvassing unit,
Task description	The teacher(s), facilitators prepare an introductory presentation on storytelling and pitching techniques. They coach the students to develop their stories and pitches alone or in teams.
Remarks	It is a good idea to benchmark storytelling and pitches
Supporting materials (materials needed for the lecture)	
Some tips for pitching start-ups can be found here: https://www.coxblue.com/17-things-you-need-to-consider-when-pitching-your-startup/. Some circular business stories can be found here: https://www.greenbiz.com/article/5-circular-economy-startups-weve-got-our-eyes And some more ideas for green circular start-ups: https://mattward.io/14-ways-to-start-a-sustainable-circular-economy-startup/ and here: https://nordicstartupnews.com/linear-circular-six-green-startups-will-change-economy/ There are also good pitches on TED.com. Let the students find more best practices.	

Recommendations (tips for trainers)

The aim is to empower the students to present their ideas with great passion and empathy.

Do not bother so much about mistake, but foster the happiness of the student to present their creative ideas, which make the world greener. Encouragement, openness, acceptance of all crazy ideas and then coaching to structure and present the plans with passion, authenticity and empathy.

CHAPTER 4
GREEN GROWTH

KEY CONCEPTS

2008 financial crisis set Europe on a path towards economic transformation.
COVID-19 pandemic makes the need for transformation more pressing.

Goal: to establish policy, regulatory, and governance frameworks to support a fairer, more inclusive, and environmentally friendly circular economy.

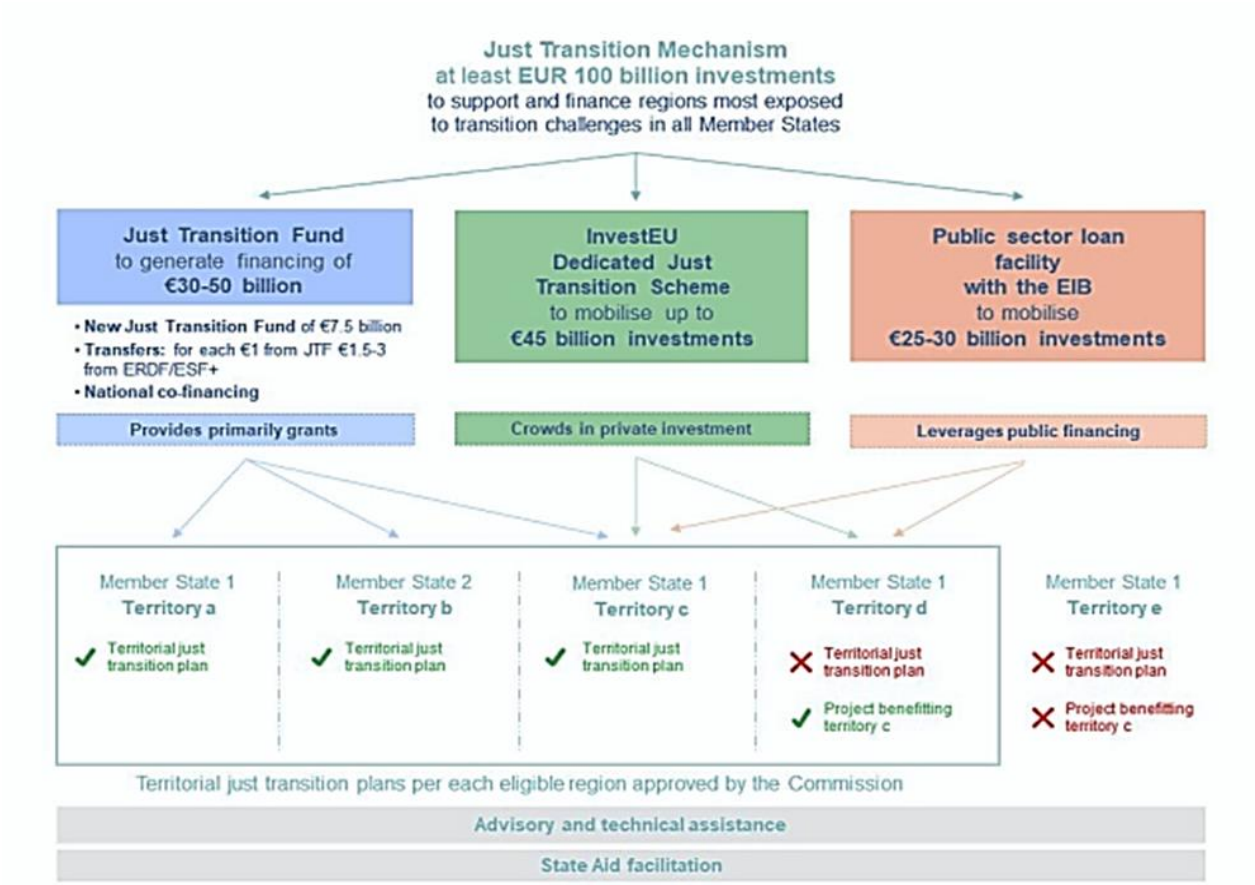
The European Green Deal outlines a comprehensive plan to transition to a greener economy.
The Commission is dedicated to ensuring a fair and inclusive transition, with no one left behind in the process.

European Green Deal

Source: https://www.weforum.org/agenda/2020/05/the-european-green-deal-must-be-at-the-heart-of-the-covid-19-recovery/

- Approved by the European Parliament on January 15, 2020.
- Demonstrates EU's commitment to reducing greenhouse gas emissions and promoting sustainable economic growth.
- No member state is left behind in the transition.
- Key measures: comprehensive climate policy, land use and forest management, coastal protection, nature-based solutions, financing instruments of EU ETS, decarbonization of electricity systems, market-based support schemes, national energy and climate plans, policies for energy efficient heating and cooling systems, investments in energy efficiency, sustainable transport/mobility, inland waterway transport and high-speed railways, climate neutral industry, reduction of chemicals in agriculture and aquaculture, zero pollution economy, cleaning air, water, and soil, species and ecosystem protection.

Just Transition Mechanism (JTM)



Source:
https://www.researchgate.net/publication/341131584_Financial_inclusion_through_the_use_of_European_financial_instruments_in_Multiannual_Financial_Framework_MFF_2021-2027

- Aimed at ensuring a fair and socially acceptable transition from unsustainable to sustainable economic activities.
- No country left behind.
- Minimizes adverse effects on workers and communities reliant on fossil fuels.
- Supports development of new sustainable economic activities and job opportunities.
- Mobilizes €55 billion from 2021 to 2027 for regions most affected by transition.
- DG REFORM provides support to 17 member states to prepare their Just Transition Plans.

Areas of Focus for Member States and Commission

- Clean Energy
- Circular Economy
- Sustainable and Smart Mobility
- Nature and Biodiversity
- Adaptation to Climate Change
- Resilience
- International Leadership

Source: https://euinasean.eu/eu-green-deal/

How to find funding for your new business in this context?

In addition to sustainable finance efforts within the EU framework, various financing opportunities for green entrepreneurs exist at the national level and in a more general context. These options can include loans, angel investors, crowdfunding, grants, venture capital, and public-private partnerships.

- **Loans**: Bank loans and other financial institution loans can be a source of funding for green entrepreneurs. Some governments and banks offer loans specifically designed to support eco-friendly and sustainable projects initiated by entrepreneurs.
- **Business Angels**: Business Angels are wealthy individuals who invest in startups and growing businesses in exchange for equity. Some angel investors specialize in supporting green and sustainable ventures, which can provide valuable resources and mentorship for young entrepreneurs.
- **Crowdfunding**: Crowdfunding is a financing method where many people contribute small amounts of money to support a project or business. There are crowdfunding platforms dedicated to eco-friendly and sustainable projects, enabling green entrepreneurs to raise funds from a wide base of investors interested in supporting the transition to a greener economy.
- **Grants**: National, regional, and local governments may offer grants to support green entrepreneurs and sustainability projects. These grants can cover a variety of areas, such as research and development, innovation, the adoption of clean technologies, and job creation in environmentally friendly sectors.
- **Venture capital**: Venture capital firms invest in early-stage companies with high growth potential in exchange for equity. Some venture capital firms focus on green technologies and sustainable business models.
- **Public-private partnerships** (PPPs): PPPs are collaborative arrangements between public and private entities to finance and implement projects. These partnerships can support green entrepreneurs by providing funding, expertise, and resources.

LET'S GO DEEPER INTO THE TOPIC

The 2008 financial crisis had already set Europe on a path towards economic transformation with the goal of implementing legislative changes by 2020. However, the COVID-19 pandemic has made the need for a deeper shift from a traditional fossil fuel-based economy to a fairer, more inclusive, and environmentally friendly circular economy even more pressing.

To facilitate this transition, it is crucial to establish policy, regulatory, and governance frameworks that improve governance, supervision, and compliance. These frameworks are essential to accelerate the sustainable energy transition by setting targets and providing the economic and financial tools that guide investment and align with the climate and sustainable development agendas of the EU and the Sustainable Development Goals (SDGs) and Paris Agreement.

The European Green Deal, approved by the European Parliament on January 15, 2020, is a testament to the EU's commitment to these goals. The Deal not only endorses the European Commission's proposal but also calls for an even more ambitious effort to reach zero greenhouse gas emissions in Europe by 2050 and to demonstrate that economic growth can occur without an increase in resource consumption.

The EU is committed to ensuring that no member state is left behind in the transition to a green economy, and it provides ongoing support to states as they adapt their regulatory frameworks and climate strategies to align with those set by the European Commission, placing significant emphasis and support on several measures to ensure a successful transition to a greener economy. Some of the key measures include:

- **Climate Policy**: Developing comprehensive climate policy that includes advice on climate strategies and action plans, and support for modeling greenhouse gas emissions.
- **Land Use and Forest Management**: Supporting land use and forest management practices, such as urban planning, smart cities, and forest accounting and inventory.
- **Coastal Protection**: Improving coastal protection and managing flood and coastal erosion risks.
- **Nature-based Solutions**: Developing nature-based solutions to address heat waves, droughts, floods, and poor air quality in urban areas.
- **Financing Instruments of EU ETS**: Implementing the financing instruments of the European Union Emissions Trading Scheme.
- **Decarbonisation of Electricity Systems**: Supporting the decarbonisation of electricity systems through the design of favorable markets and regulatory frameworks for renewable energy sources.
- **Market-based Support Schemes**: Developing market-based support schemes for renewable energy and energy efficiency investments.
- **National Energy and Climate Plans**: Developing national energy and climate plans, including analytical and energy modeling.
- **Policies for Energy Efficient Heating and Cooling Systems**: Assessing policies for energy efficient heating and cooling systems.
- **Investments in Energy Efficiency**: Increasing investments in energy efficiency for older buildings.
- **Sustainable Transport/Mobility**: Defining policies for sustainable transport/mobility and alternative fuels.
- **Inland Waterway Transport and High-Speed Railways**: Strengthening inland waterway transport and high-speed railways.
- **Climate Neutral Industry**: Implementing a climate neutral industry according to circular economy principles.
- **Reduction of Chemicals in Agriculture and Aquaculture**: Supporting the reduction of chemicals in agriculture and aquaculture.
- **Zero Pollution Economy**: Defining policies for a zero pollution economy.
- **Cleaning Air, Water and Soil**: Supporting the cleaning of air, water and soil.
- **Species and Ecosystem Protection**: Implementing policies to protect species and ecosystems.

Despite the efforts of all member states and the Commission to ensure an equal distribution of change, the scale of the new policies puts a challenge on certain regions within the EU. Regions with a greater dependence on fossil fuels and a strong presence of heavy industry in their economy will face a profound economic, environmental, and social transformation. To mitigate the impact of this transition on these

regions, and to make sure that nobody is left behind, the Commission has created the Just Transition Mechanism (JTM), which is a policy tool aimed at ensuring a fair and socially acceptable transition from unsustainable to sustainable economic activities, in particular from carbon-intensive industries to low-carbon ones.

The JTM seeks to minimize the adverse effects of this transition on workers and communities that are heavily reliant on the former, and support the development of new, sustainable economic activities and job opportunities in these areas. This is typically achieved through a combination of measures such as retraining programs, financial support, and investment in infrastructure and renewable energy. The objective of the JTM is to ensure a transition to sustainability that is equitable and inclusive, and that protects the rights and livelihoods of all citizens. This mechanism will mobilize €55 billion from 2021 to 2027 for regions most affected by the transition.

Additionally, through the Technical Support Instrument, DG REFORM is providing support to 17 member states to prepare their Just Transition Plans, which will enable them to access the funds mobilized by the JTM. The Commission is dedicated to ensuring that the transition to a greener economy is a success and that no one is left behind in the process.

Key areas of the European Green Policy

The European Green Deal outlines several key areas of focus for the member states and the Commission to drive their efforts in generating new legal frameworks. These areas include:

1. **Clean Energy:** The Commission has released a strategy for a greener and cleaner energy future, the EU Strategy for Energy System Integration. This provides a framework for an energy transition, including measures to achieve a more circular energy cycle and to implement direct electrification in vehicles, as well as to develop clean fuels (such as hydrogen). The European Clean Hydrogen Alliance has also been established, recognizing the special role hydrogen will play in this transition. By 2023, member states must update their national climate and energy plans to align with the EU's 2030 climate target.

2. **Sustainable Industry**: A Circular Economy industrial policy is another key component of achieving the EU's climate targets. The EU Industrial Strategy was announced in March 2020, with the aim of empowering citizens, revitalizing regions, and making the best technologies available. Key areas of focus include modernizing industry, creating "climate-neutral" markets for circular economy products, and reducing waste through a "sustainable products" policy with a particular focus on textiles, construction, vehicles, batteries, electronics, and plastics. The Commission will also review waste shipment and export rules to stop waste from leaving the EU.

3. **Buildings Construction and Renovation**: This policy prioritizes the construction of new buildings and the renovation of existing ones with an emphasis on sustainability. The plan focuses on promoting energy-efficient construction methods, digitization, and the implementation of energy performance standards for buildings.

4. **Farm to Fork**: The Farm to Fork strategy focuses on food sustainability and supporting farmers, ranchers, and fishermen with environmentally friendly practices. Key objectives for 2030 include

making 25% of EU agriculture organic, reducing pesticide use by 50%, reducing fertiliser use by 20%, reducing nutrient losses in processed foods by at least 50%, reducing antimicrobial use by 50%, creating sustainable food labeling, reducing food waste by 50%, and investing at least 10 billion euros in related R&D.

5. **Eliminate Pollution**: The Zero Pollution Action Plan aims to achieve zero pollution of air, water, and soil by 2050. Industrial activities must be carried out in a toxic-free environment, and water management policies must be adapted accordingly. Substitutes for harmful resources such as microplastics and chemicals such as pharmaceuticals will be sought to achieve this goal.

6. **Sustainable Mobility**: Reducing emissions from transport is another priority for the European Green Deal. It aims to launch a Sustainable and Intelligent Mobility strategy to increase the uptake of sustainable and alternative fuels in road, maritime, and air transport, and set emissions standards for combustion engine vehicles. The strategy also aims to provide sustainable alternatives to businesses and the general public and to develop intelligent traffic management systems to reduce congestion and emissions. Land or water routes will be prioritized over air routes for freight transport.

7. **Biodiversity**: The EU biodiversity protection strategy was introduced in 2021, focusing on managing forests and marine areas, protecting the environment, and addressing the loss of species and ecosystems. This includes restoring affected ecosystems through organic farming methods, supporting pollination processes, restoring free-flowing riverbeds, reducing pesticides, and reforestation. Key targets for 2030 include protecting 30% of maritime and terrestrial territories, especially primary and old-growth forests, planting 3 billion trees, restoring at least 25,000 km of rivers, reducing pesticide use by 50%, increasing organic farming, increasing biodiversity in agriculture, reversing the decline of pollinators, and spending €20 billion annually on biodiversity efforts and making it a business practice.

8. **Sustainable finance**: In the context of EU policies, sustainable finance refers to finance that supports economic growth while reducing environmental impacts and considering social and governance aspects. It also entails transparency regarding risks from social and environmental governance and mitigation of such risks through appropriate governance of financial and corporate actors. The Commission introduced the European Green Deal Investment Plan on 14th January 2020, which aims to mobilize at least €1 trillion of sustainable investments in the next decade. The plan will create investment platforms and mobilize private capital to achieve the Green Deal goals. The mechanisms with which the EU intend to mobilize this capital are:
    - European Investment Bank (EIB): The EIB is the long-term lending arm of the European Union and is one of the largest international public banks. The EIB provides financing for projects that support the transition to a green economy, such as renewable energy, energy efficiency, and sustainable transport.
    - European Regional Development Fund (ERDF): The ERDF is a key source of funding for regions in the EU and supports projects that contribute to the goals of the European Green Deal. The ERDF provides funding for projects that promote the transition to a green economy, such as renewable energy, energy efficiency, and sustainable transport.
    - European Fund for Strategic Investments (EFSI): The EFSI is a key tool for supporting investment in the EU and is designed to provide a guarantee for project financing. The EFSI provides financing for projects that support the transition to a green economy, such as renewable energy, energy efficiency and sutainable transport.

The impact of COVID-19 pandemic in the European Green Deal

With the COVID-19 pandemic spreading rapidly within the EU just after the signing of the European Green Deal, interest in it declined dramatically as it was pushed off the front page by the pandemic. Many leaders suggested an annual pause or a complete discontinuation of the agreement as they felt that the main focus of the EU policy-making process at the time, and in the short term, should be on the immediate crisis rather than on climate change.

However, as the recovery from COVID-19 started to stablish, many European leaders have reassured their support for the agreement. Indeed, 17 EU member state leaders signed a letter in April 2020 calling for a return to the spirit of the European Green Deal as a response to the economic crisis, transforming Europe into a competitive, sustainable and climate-neutral economy.
In the same month, 10 countries urged the European Commission to adopt a "green recovery plan" to exit the foreseeable economic fallout from the pandemic.

Thus, in May 2020, a European recovery package known as "Next Generation EU" was approved with 750 billion euros. These funds are part of the European Green Deal, and will only go to projects that meet certain environmental criteria. Thirty per cent of the funding will be earmarked for climate change mitigation. The recovery package also aims to restore some balance between the richest and poorest EU countries.

As part of the European Union's response to the COVID-19 pandemic, several economic programs were created, such as CRII, CRII+, European Social Fund+ and REACT-EU. Some of these programs (such as REACT-EU) also serve for investment in the European Green Deal.

How to be a green entrepreuner in Europe

The quest for a greener, more sustainable future has led to an increase in opportunities for green entrepreneurship in Europe. Becoming a green entrepreneur in Europe is not easy, as being an entrepreneur is never easy, but today it is a very interesting option as the green economy is one of the main themes of new European policies.

To start, aspiring green entrepreneurs need to **identify a sustainable business idea** that matches their passion and expertise. Some of the most pressing issues have already been identified in the Key Themes of the European Green Deal, so the first steps to identifying that idea that could lead to a new business should include:

- Research the most pressing environmental issues and identify potential solutions to address them.
- Study successful green businesses to understand their strategies and business models.
- Attend conferences, workshops and networking events that focus on sustainability and environmental issues.
- Join online forums and discussion groups related to green business and sustainable development.
- Follow green business influencers, thought leaders and organizations on social media.

Once a business idea has been identified, it's important to carry out **market research and feasibility analysis** to ensure that the idea is viable, profitable and meets a real market need. This process includes:

- Analyzing the target market, including demographics, psychographics, and buyer behavior.
- Analyzing the target market, including demographics, psychographics and buying behaviour.
- Identifying and assessing potential competitors.
- Assessing the regulatory environment and potential barriers to entry.
- Estimate investment requirements and potential profit margins.
- Identify any risks or challenges that may need to be addressed.

The next step should be to prepare a **detailed budget** for the new green project. This is essential to secure funding and ensure the business runs efficiently. The following steps should help entrepreneurs prepare a comprehensive budget:

- Estimate initial start-up costs, such as legal fees, office space, equipment and licenses.
- Develop a forecast of ongoing operating costs, including salaries, rent, utilities and supplies.
- Identify all potential revenue streams and make projections for sales and income.
- Calculate the expected return on investment (ROI) and payback period.
- Include contingency plans for unexpected expenses or fluctuations in income.

A **well-drafted business plan** will be crucial in attracting investors, securing funding and guiding the growth of a green business. A green business plan should contain the following elements:

- Executive Summary: A concise overview of the business idea, target market, competitive landscape and financial projections.
- Company Description: A detailed explanation of the business, its mission and vision, and the problem it seeks to solve.
- Market Analysis: An in-depth examination of the target market, industry trends and competition.
- Products or Services: A detailed description of the products or services offered, their unique selling points and environmental benefits.
- Marketing and sales strategy: An outline of the marketing tactics and distribution channels that will be used to reach customers and generate revenue.
- Operations and management: A description of the company's organizational structure, team members and key partnerships.
- Financial projections: A comprehensive forecast of revenues, expenses and cash flow, including a break-even analysis and profit and loss projections.

Once reached this point, **securing funding** is the key to success. This is probably the most important aspect of any new green business. There are several funding options available to green entrepreneurs. To secure funding, entrepreneurs should consider the following options:

- **Loans**: Entrepreneurs should do extensive research into what loans are available to green businesses in their country and at a European level. For example, the European Investment Bank (EIB) provides loans and guarantees for projects that contribute to climate protection and environmental sustainability. In France, Bpifrance offers green loans, while Triodos Bank in the Netherlands finances sustainable businesses across Europe.

- **Business Angels**: There are many events at local, regional, national and even European level where entrepreneurs can meet these angel investors and try to convince them to invest in their business. However, these events tend to be crowded and it is better to approach these investors at another time when you have a clearer mind and a more developed business plan. There are several networks of business angels that could be contacted. In the UK, for example, the Green Angel Syndicate is an example of a network of angel investors focused on supporting early stage green businesses. Similarly, the Nordic Green Angel Network (NoGAN) operates in the Nordic countries and brings together entrepreneurs and investors in the green sector.

- **Crowdfunding**: Launching a crowdfunding campaign could be a good idea, but not every platform is suitable for green ideas. There are many crowdfunding platforms on the internet, with kickstarter and indiegogo being some of the most popular. However, these platforms are not specialised in green entrepreneurship, so finding a platform dedicated to environmentally friendly and sustainable projects should be a must. These platforms allow green entrepreneurs to raise funds from a broad base of investors interested in supporting the transition to a greener economy. One such platform is Ecrowd! in Spain, which specialises in funding sustainable projects and businesses. In France, Lita.co focuses on socially responsible investment, including green projects. In the UK, Abundance Investment allows investors to support renewable energy projects and green initiatives.

- **Grants**: National, regional and local governments may offer grants to support green entrepreneurs and sustainability projects. These grants can cover a variety of areas, including research and development, innovation, the introduction of clean technologies and job creation in green sectors. For example, in Germany, the Federal Ministry of Economics and Energy (BMWi) offers grants through its Environmental Innovation Programme (UIP) to support the development and implementation of innovative environmental technologies. In Italy, Invitalia provides grants to start-ups working on innovative green projects.

- **Venture capital**: Similar to business angels, venture capital firms invest in early stage companies with high growth potential. Networking with these companies would be a very interesting way to get in touch with them and find the right moment to share your projects with them. As we mentioned for crowdfunding platforms, finding the right venture capital firm is very important. Some of them focus on green technologies and sustainable business models, so try to target those. For example, the Environmental Technologies Fund (ETF Partners) invests in European companies that promote sustainability through innovation. In Spain, Axon Partners Group supports green start-ups through its sustainable investment division.

- **Public-private partnerships (PPPs)**: These PPPs are a good way to find not only funding, but also expertise and resources to get your new green business off the ground. For example, the European PPP Expertise Centre (EPEC) supports the development of PPPs for sustainable infrastructure projects across Europe.

Apart from all this information, starting a new business is not always that easy and sometimes a different focus is needed. For example, sometimes it is necessary to start the business idea as soon as possible, for example to deal with an emergency, and funding becomes a secondary priority. For such situations, where normal business plans and funding schemes are not suitable, there are other alternatives to consider for those who want to start a new business related to the green economy:

- **Social enterprises**: These are businesses that aim to generate profit while also achieving a social or environmental impact. Social enterprises can be an effective way to start a business idea that addresses sustainability issues while creating employment opportunities and promoting social well-being.

- **B Corporations**: A B Corporation is a type of for-profit company that meets rigorous social and environmental standards. By becoming a certified B Corporation, businesses can signal their commitment to sustainability and attract like-minded customers and investors. Sometimes our idea may fit the needs of one of these corporations, so it might be a good idea to find out.

- **Collaborative business**: This model encourages the sharing, lending or renting of goods and services, reducing waste and resource consumption. Entrepreneurs can create platforms or services that facilitate collaborative consumption, such as car-sharing or tool-lending platforms. This may be an option where traditional funding schemes are not available.

All this should give you a starting point when thinking about starting your own business, but always remember that green entrepreneurship is not just about starting a new business, it is about fostering a mindset that prioritises sustainability and social responsibility in every aspect of life. By adopting this mindset and inspiring others to do the same, entrepreneurs can make a lasting difference for the planet and future generations.

Homework reflection & exercises

Exercise 1:
Search the internet for 10 real-life examples of environmental initiatives in Europe, such as wind energy or energy-efficient buildings, and analyze the impact they will have on the environment and on the economy. For each example explain 4 ways in how it will benefit the environment and how it will improve the economy of the countries in the EU.

Exercise 2:
Imagine that you are the policy maker and you have 100 million euros:

- How would you distribute the 100 million euros between these topics?
    - Clean energy
    - Sustainable industry
    - Buildings construction and renovation
    - Farm to fork
    - Eliminate pollution
    - Sustainable mobility
    - Biodiversity
- Why did you make this division?

Exercise 3:
Explain why you think that some countries are reluctant to make the changes that the European Comission is demanding to the member states.

Exercise 4:
Think about your nearest wildlife reserve. Which impact do you think that human behaviour has had on it and which measures do you think that policy makers should implant in order to protect it? Name at least 5 effects and 5 measures.

Exercise 5:

1. Make a list of all industries and products you think that are contributing to environmental degradation and name the problem they are causing.
2. For each of the industries and products identified, think about one business that could address the problems you have identified for them.
3. From 1 to 100 give a score to each of the businesses you imagined according to their possible viability. 1 will mean a business impossible to be successful and 100 will be a business that will surely be successful.
4. Take the business with the highest score and:
    a. Target the market of the business
    b. Define the product or service that the business would offer
    c. Think about how you would sell it. Which would be our sales strategy?
    d. How much money do you think you would need to start the business and how would you get it?
    e. According the planned sales, how much do you think that your business would impact the environment?

REFERENCES

- Information about the European Green Deal: in the European Consilium website: https://www.consilium.europa.eu/en/policies/green-deal/
- European Green Deal in Wikipedia: https://en.wikipedia.org/wiki/European_Green_Deal
- Timeline - European Green Deal and Fit for 55: https://www.consilium.europa.eu/en/policies/green-deal/timeline-european-green-deal-and-fit-for-55/
- Inforgraphics about the European environmental policy: https://www.consilium.europa.eu/es/infographics/?filters=1638
- Communication from the Commission about the Sustainable Europe Investment plan for the European Green Deal: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0021
- Overview of sustainable finance in the European Commission website: https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en
- Information about the green transition in the European Commission website: https://reform-support.ec.europa.eu/what-we-do/green-transition_en

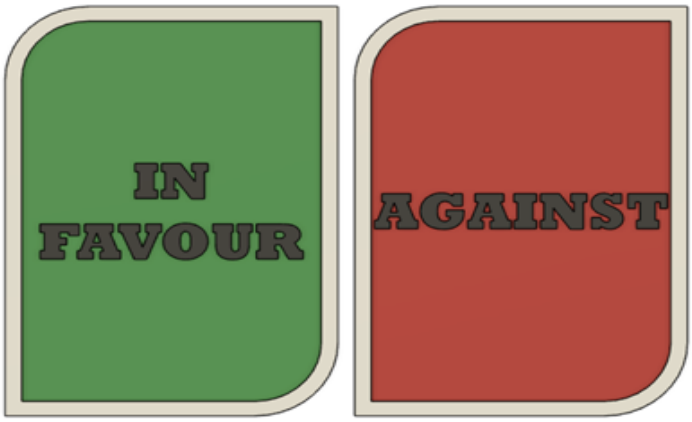
PRACTICAL ACTIVITIES

Activity 1: Finding semi-optimal solutions in the European Green Deal context

General information	
Name	**Finding semi-optimal solutions in the European Green Deal context**
Purpose of the activity	Encourage creativity and critical thinking in students to generate sustainable solutions that will take care of some topics of the European Green Deal and at the same time satisfy four main groups of people: - those who finance the project (financial aspect) - those that will get/lose jobs because of it or somehow get a change in their life style because of it (social aspect) - those who think about the environmental impact of the project (environmental aspect)
Target group	VET students
Group briefing	Teachers will help learners to identify learner outcomes.
Estimated type and size of the group	Ideally a group of no more than 6 people. It is recommended for students with the ability to work in a group that are prepared to be open to others opinions and at the same time be prepared to defend theirs
Learning outcomes/ objectives	Identify and describe 11 areas of focus of the Europena Green Deal and learn how to do brainstorming inside a team and how to see flaws in your own idea and how to defend/promote the good parts of the idea. Basically learn that no idea is perfect, but in time it can be adjust to better fit its final goal.

Activity outline	
Goal	The students should get a basic knowledge of the main purpose of the European Green Deal. At the end of the activity they should have a wider view on those topics and they should develop emphatic skills that will take in account what other people may think. They should be more confident in inventing solutions to problems, that will take in account different new problems that their solution could create and find a way that won't be perfect, but it will accommodate, to the maximal extent, most of the social, environmental and financial aspects of a specific problem
Duration	3,5 hours (1-hour presentation and explanation of the European Green Deal, 1-hour for finalise the idea and presentation, 1-hour for the presentations and questions, half-hour for the evaluation of each team's final results)
Task description	1. Introduce students to the EGD's areas of focus and explain what they are and why they are important. 2. Divide students into groups of six and assign them an area of focus from the EDG (all teams should have the same area of focus). 3. Explain to the students the activities rules: a. Each team will need to think (brainstorm) about a problem related to the given area of focus from the EDG and after that it will need to find a concrete solution for it. If possible the problem and solution should take in account a smaller area (their school, neighbourhood, town, municipality). b. When they have a concrete idea, they will need to think about the financial aspect of the idea (who will they ask for sponsorship or other types of financial help, how much money will they need, what will be the costs in the long run, how will they present their idea to potential investors…) c. When they'll have sorted out the financial part, they will need to think about the social impact of their idea. (How will their idea impact the community, who will gain from it and who might lose something (jobs, revenue) because of it, who would support it and who might be against it – working class, children, elders, politicians…) d. At the end when they will, more or less, sort out the social impact of their idea, they'll need to think about the environmental impacts (How will the idea impact the local flora and fauna, which animals and plants will benefit and which might lose something, will it work in a long run, can it be scaled up without causing too much pressure to the environment…) 4. Once the phase number three is completed, inside each team, three pairs of people should be selected. Two people should take care about defending the point of view from the financial part, two should take care of the social and two for the environmental part.

5. A table should be made on the white board. In it there will be all the participating teams and the three main areas of concern (financial, social and environmental) and an extra money section. Each team will be given some money in forms of coins (that can be just printed and cut from normal paper or cardboard). And each pair inside a team will be given a red card that will mean “against” and a green card meaning “in favour”.



6. Now each team will present their ideas to all other teams, explain the impact of their idea in the three main areas (financial, social and environmental). After that each other team will have a question regarding those three areas of concern and the pair assigned to that topic will have to defend their team’s idea. Each asking team will give a “in favour” or “against” vote for the idea. At the end, the main goal for the team in question is to receive at least 2/3 of positive feedbacks from each area. Once all the ideas from each team have been heard, each team will decide how and to who will they give their coins.

7. At the end the table should reveal, which idea was the most popular and received the most financial support and what parts of an idea from other teams are to be improved.

Remarks	It is important that students really make and use coins or other type of “fake” money, so they have a better feeling of “giving away” something theirs for a good idea. Students can use posters or if possible powerpoint like presentations with photos and very short texts. The explanation should be mainly oral. Students should be made aware of the importance of empathy in their decision and the ability to put themselves in someone else’s shoes. Students should know that no idea is perfect from the start, but in time can be improved and grow into something remarkable, step by step. If an idea solves just part of a problem is still better than no solution at all.
Supporting materials (materials needed for the lecture)	
European Commission: A European Green Deal: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.	
Remarks	It is important that students really make and use coins or other type of “fake” money, so they have a better feeling of “giving away” something theirs for a good idea. Students can use posters or if possible powerpoint like presentations with photos and very short texts. The explanation should be mainly oral. Students should be made aware of the importance of empathy in their decision and the ability to put themselves in someone else’s shoes. Students should know that no idea is perfect from the start, but in time can be improved and grow into something remarkable, step by step. If an idea solves just part of a problem is still better than no solution at all.
Supporting materials (materials needed for the lecture)	
European Commission: A European Green Deal: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.	

Recommendations (tips for trainers)

Please come prepared with visual material related to the European Green Deal. If possible, try to use video presentations.

Give to students at least one concrete example for each of the focus areas of the EDG.

Activity 2: Finding semi-optimal solutions in the European Green Deal context – online version

General information	
Name	**Finding semi-optimal solutions in the European Green Deal context (online version)**
Purpose of the activity	Encourage creativity and critical thinking in students to generate sustainable solutions that will take care of some topics of the European Green Deal and at the same time satisfy four main groups of people: - those who finance the project (financial aspect), - those that will get/lose jobs because of it or somehow get a change in their life style because of it (social aspect), - those who think about the environmental impact of the project (environmental aspect).
Target group	VET students
Group briefing	Teachers will help learners to identify learner outcomes.
Estimated type and size of the group	Ideally a group of no more than 6 people. It is recommended for students with the ability to work in a group that are prepared to be open to others opinions and at the same time be prepared to defend theirs
Learning outcomes/ objectives	Identify and describe 11 areas of focus of the Europena Green Deal and learn how to do brainstorming inside a team and how to see flaws in your own idea and how to defend/promote the good parts of the idea. Basically learn that no idea is perfect, but in time it can be adjusted to better fit its final goal.
Activity outline	
Goal	The students should get a basic knowledge of the main purpose of the European Green Deal. At the end of the activity they should have a wider view on those topics and they should develop emphatic skills that will take in account what other people may think. They should be more confident in inventing solutions to problems, that will take in account different new problems that their solution could create and find a way that won't be perfect, but it will accommodate, to the maximal extent, most of the social, environmental and financial aspects of a specific problem. Students will see that all of this can be done remotely or online.
Duration	3,5 hours (1-hour presentation and explanation of the European Green Deal, 1-hour for finalise the idea and presentation, 1-hour for the presentations and questions, half-hour for the evaluation of each team's final results)

Task description	1. Introduce students to the EGD's areas of focus and explain what they are and why they are important via conferencing applications like Zoom or MS Teams. 2. Divide students into groups of six and assign them an area of focus from the EDG (all teams should have the same area of focus). 3. Explain to the students the activities rules: A. Each team will need to think (brainstorm) about a problem related to the given area of focus from the EDG and after that it will need to find a concrete solution for it. If possible the problem and solution should take in account a smaller area (their school, neighbourhood, town, municipality). B. When they have a concrete idea, they will need to think about the financial aspect of the idea (who will they ask for sponsorship or other types of financial help, how much money will they need, what will be the costs in the long run, how will they present their idea to potential investors…) C. When they'll have sorted out the financial part, they will need to think about the social impact of their idea. (How will their idea impact the community, who will gain from it and who might lose something (jobs, revenue) because of it, who would support it and who might be against it – working class, children, elders, politicians…) D. At the end when they will, more or less, sort out the social impact of their idea, they'll need to think about the environmental impacts (How will the idea impact the local flora and fauna, which animals and plants will benefit and which might lose something, will it work in a long run, can it be scaled up without causing too much pressure to the environment…) 4. Once phase number three is completed, use break rooms in Zoom or MS Teams to make a private area for each team, so they can brainstorm. Inside each team, three pairs of people should be selected. Two people should take care about defending the point of view from the financial part, two should take care of the social and two for the environmental part. 5. When students are brainstorming in the break rooms, the teacher should use a (real time) online questionnaire (Slido, Google Forms, etc). In the questionnaire there should be a multiple choice option with all the team's names for each of the three main areas of concern (financial, social and environmental). When the time for the questionnaire will come, each team should mark only the names of other teams, which they liked the financial or social or environmental plan in the appropriate section. There should be an extra money section as well. In the money section there should be an option to type or select the amount of money a team would be prepared to give to another team for their idea. Each team will be given a maximum amount of money to spend on others team's ideas. All the participating teams should get a link to the online questionnaire.

	6. After the brainstorming in the break rooms all the students should come back to the main streaming room. Now each team will present their ideas to all other teams, explain the impact of their idea in the three main areas (financial, social and environmental). After that other teams will have a question regarding those three areas of concern and the pair assigned to that topic will have to defend their team's idea. Once all the ideas from each team have been heard, each team will go back to the break room for a short chat and start filling the online questionnaire. 7. After 10 or 15 minutes, everyone should come back, to the main streaming room where the questionnaire will reveal, which idea was the most popular and received the most financial support and what parts of an idea from other teams are to be improved.
Remarks	Students can use posters or if possible powerpoint like presentations with photos and very short texts. The explanation should be mainly oral. Students should be made aware of the importance of empathy in their decision and the ability to put themselves in someone else's shoes. Students should know that no idea is perfect from the start, but in time can be improved and grow into something remarkable, step by step. If an idea solves just part of a problem is still better than no solution at all.
Supporting materials (materials needed for the lecture)	
EGD: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en Zoom: https://zoom.us/ MS Teams: https://www.microsoft.com/en-us/microsoft-teams/log-in Google Forms: https://www.google.com/forms/about/ Slido: https://www.slido.com/	

Recommendations (tips for trainers)

Please come prepared with visual material related to the European Green Deal. If possible, try to use video presentations.

Give to students at least one concrete example for each of the focus areas of the EDG.

Prepare the questionnaire in advance and then just add the team's names

Activity 3: Collect trash competition

General information	
Name	**Collect trash competition**
Purpose of the activity	To make students aware of the consequences when we throw waste into nature
Target group	Students with special needs between 16 and 25 years of age
Estimated type and size of the group	10-20 students The students must be divided into groups of 4-5, for each group there must be a teacher.
Learning outcomes/ objectives	The students will gain greater knowledge of the individual global goals.
Activity outline	
Goals	• Become more aware of the consequences when we throw waste into nature. • Taking greater ownership of nature and not throwing waste in nature.
Duration	2,5 hours • 20 minutes introduction • 1.5 hour practical assignment • 20 minutes to find the winner of the competition • 20 minutes collection and closing.
Task description	The students gather in class and get an introduction to how much waste is thrown into nature, both on land and water. The pupils are taught what consequences this has. Pictures are included so that it becomes visual for the students. After 20 minutes of teaching this, the students are introduced to the practical task of collecting rubbish in the local area. The students are divided into groups and given sacks and rubber gloves. They then have 1.5 hours to collect as much rubbish as possible. There will be a small prize for the 3 teams that have collected the most plastic. After the competition, there will be a compilation of the assignment and the students themselves must submit what they have gained from this teaching.
Additional information	This is part of the teaching of the 17 global goals, which are part of social studies.
Supporting materials	
Image material about the 17 global goals and about the consequences that throwing away waste has on nature. Plastic bags, disposable gloves.	

CHAPTER 5
INCLUSIVE AND GREEN GROWTH

LET'S GO DEEPER INTO THE TOPIC

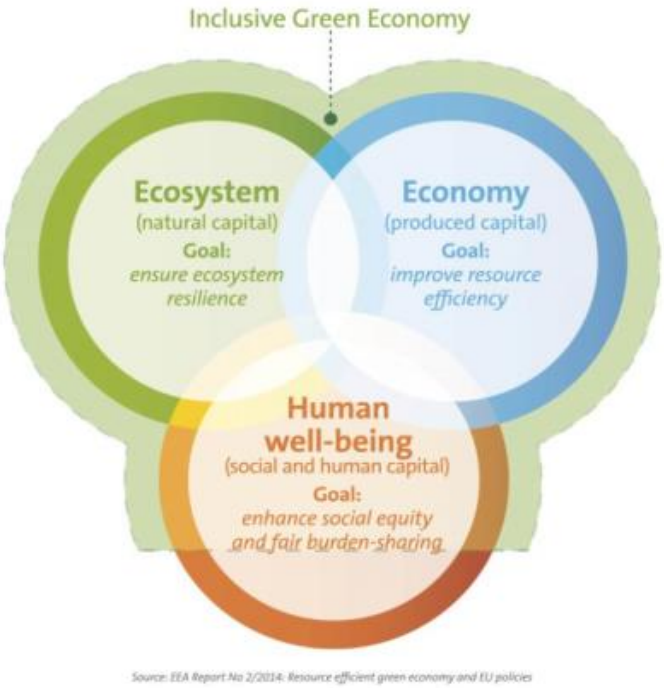
Green Economy and Inclusive Green Economy

According to the UN, Green Economy is the economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. Green economy focuses on the environment and people' s present well-being and sustainable future.

Inclusive Green Economy is a concept that has evolved from earlier work on Green Economy. Such an economy is low carbon, efficient and clean in production, but also inclusive in consumption and outcomes, based on sharing, circularity, collaboration, solidarity, resilience, opportunity, and interdependence. It is focused on expanding options and choices for national economies, using targeted and appropriate fiscal and social protection policies, and backed up by strong institutions that are specifically geared to safeguarding social and ecological floors.

As an economic model, it takes into consideration environmental and social externalities and does not focus on GDP growth as the ultimate economic goal. Inclusive green economy is associated with a wealth of opportunities, for both people -to improve their living environments and have decent jobs- and for businesses – to increase benefits through more efficient production practices that generate savings, take advantage of the growing market for environmental goods and services, improve their image etc…

The transition to an inclusive green economy entails joint efforts at many levels, including in stimulating sustainable lifestyles, scaling-up sustainable consumption and production models and encouraging green entrepreneurship, through the advancement of eco-innovations, the facilitation of resource efficiency, and the mainstreaming of green consumer behaviour.



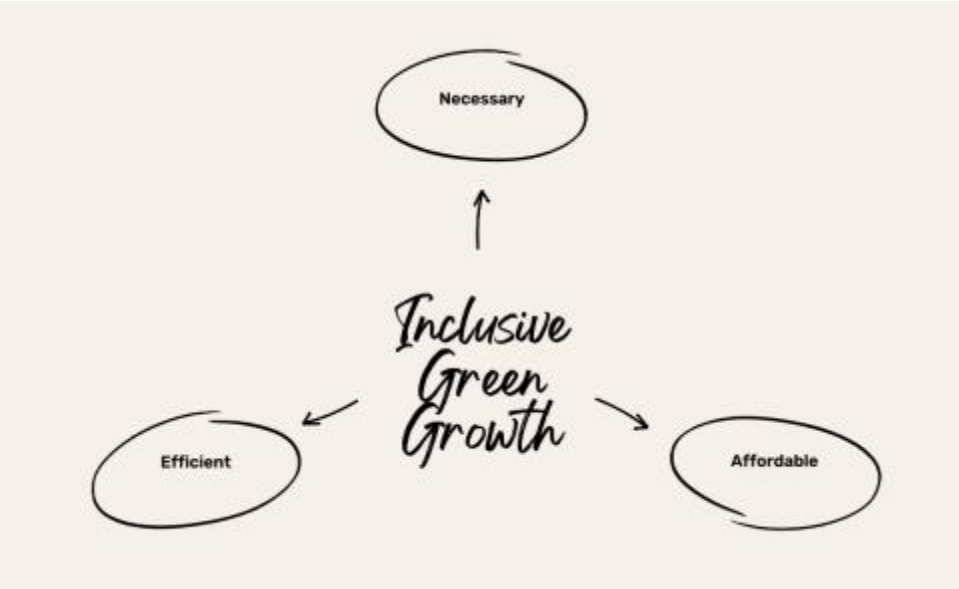
Source: https://www.switchtogreen.eu/inclusive-green-economy/

Inclusive Green Economy follows five key principles, which together can guide economic reform in diverse contexts.

- **Wellbeing**: inclusive green economy is people centred. Its purpose is to create genuine, shared prosperity. It focuses on growing wealth that will support wellbeing. It prioritises investment and access to the sustainable natural systems, infrastructure, knowledge and education needed for all people to prosper. It offers opportunities for green and decent livelihoods, enterprises and jobs.
- **Justice**: inclusive green economy is inclusive and non-discriminatory. It promotes the equitable distribution of opportunity and outcome.
- Planetary Boundaries: It is an economy that safeguards, restores and invests in nature.
- **Efficiency and Sufficiency**: It enables economic growth without raising resource consumption. It recognises there must be a significant global shift to limit consumption of natural resources to physically sustainable levels.
- **Good Governance**: it is based on government actions, transparency and appropriate policies

What does inclusive and green growth mean?

Inclusive green growth is a growth that not only helps green economies, but also helps move towards sustainable development by ensuring environmental sustainability contributes to, or at least does not come at the expense of, social progress. Inclusive green growth is necessary, efficient, and affordable.



Source: Own conceptualisation based on literature review

- It is necessary because sustainable development cannot be achieved without it.
- It is efficient because it is addressing market and governance failures thus creating plenty of scope for growing cleaner without necessarily growing slower.
- It is affordable because many green policies pay for themselves directly, and the others make economic sense once externalities are priced, and ecosystem services are valued.

Inclusive and green growth policies and strategies

Inclusive green growth policies must be carefully designed to maximise benefits for, and minimise costs to, the poor and most vulnerable, and policies and actions with irreversible negative impacts (e.g. environmental degradation, inefficient use of natural resources) must be avoided.

Inclusive green growth is based on common principles and challenges; however, strategies vary across countries, reflecting local contexts and circumstances. Inclusive green growth requires complementary policies, including public investments, innovation and industrial policies, education and training, labour market reforms, and communication, investments in human or physical capital.

Inclusive green growth policies and practices can contribute to growth through three channels:

- They can help to increase the amount of natural, physical, and human capital available.
- They can promote efficiency.
- They stimulate innovation.

Source: Own conceptualisation based on literature review

How to put green growth into practice? Few examples from EU countries

Climate Culture Pavilion, Graz, Austria

This project puts in practice green growth by promoting inclusive governance that fosters communication between citizens and government.

Climate change calls for new ways of life, everyday structures, and new strategies for dealing with our environment and resources. The Climate Culture Pavilion gives this relevant and pressing issue a collaborative and democratic platform. All while offering an on-site sensory experience of the environment.

The Pavilion is a 100-square-metre-long temporary forest, stage, and gathering space in Graz's city centre. The goal is to develop climate culture collectively and connect political, economic, scientific, and cultural debates. All of the events are open to the public at all times. The project's finance is based on solidarity and inclusivity: large and financially strong partners contribute to the Pavilion. Small and new ventures, on the other hand, pay nothing or receive financial assistance from them.

The structure is built from three standard profiled timbers (larch and spruce) and fixed with screw or plug-in connections.The wooden structure can be dismantled and transported by vehicle, or it can be reused as a building material. All technical installations, electrical cables, and water pipes, up to and including the installed equipment, are borrowed or rented, lowering costs and establishing a circular stance. The plants lead to a natural climate moderation. At the same time, the woods quickly integrate into the local ecosystem.

Source: https://new-european-bauhaus.europa.eu/get-inspired/inspiring-projects-and-ideas/climate-culture-pavilion_en

Aria, Milan, Italy

This project puts in practice green growth as a project that strengthens the livelihoods of poor people, secure their rights and ensure they benefit from green transformations.

Aria is the regeneration project of the former Slaughterhouse in Milan, aiming to be the first Carbon Negative Area in the Municipality of Milan. The project is the winner of the second edition of Reinventing Cities, the international competition launched by the City of Milan together with C40 for sustainable urban regeneration.

The objective is not only to reduce the CO_2eq emissions produced by the intervention to zero, but to remove emissions from the surrounding city. The project will produce its entire energy needs on-site from renewable sources (zero carbon), and will also transfer a surplus of clean energy to other areas of the city, thus lowering the CO_2 produced in the city (carbon negative).

Regarding buildings: about 15% recovered pre-existing buildings; 35% new residential areas (most of them affordable housing); more than 40% mixed use (accommodation, offices, laboratories, exhibition and commercial spaces); a student residence; a medical centre; the IED Campus. Residents and operators in the district will share spaces and services for self-managed activities and develop inclusive social projects. Monitoring of energy consumption will also be put in place.

2023 Green Finance Strategy, United Kingdom

This initiative puts in practice green growth as a financial system reform to drive investments.

The 2023 Green Finance Strategy is an update to the UK's 2019 Green Finance Strategy and sets out how continued UK leadership on green finance will cement the UK's place at the forefront of this growing global market, and how the UK will mobilise the investments needed to meet climate and nature objectives. This Strategy aims to reinforce and expand the UK's position as a world leader on green finance and investment, delivering five key objectives:

- UK financial services growth and competitiveness
- Investment in the green economy
- Financial stability
- Incorporation of nature and adaptation
- Alignment of global financial flows with climate and nature objectives

AYR, the sustainability platform, Matosinhos, Portugal

This project puts in practice green growth as it is a tool to measure and track this progress.

AYR is a sustainability platform that originated in Matosinhos, Portugal. At the intersection of the physical and digital worlds, AYR connects people and rewards them for making sustainable choices. Its current focus is on the mobility sector, but it also helps local communities to develop new habits and rethink their consumption patterns when it comes to energy or food.

The platform calculates the amount of CO2 emitted when people choose alternatives to individual cars These non-emissions are converted into virtual tokens, which green credit users can keep in a digital wallet and then exchange for specific services or goods. However, not only individuals can benefit from AYR. Businesses can also offset their carbon emissions by purchasing green credits.

The proceeds from both sources are reinvested in projects involving local carbon capture, sustainable mobility, and the circular economy.

Green and inclusive business

The private sector plays an essential role in achieving sustainable development goals. Green and inclusive growth at the same time offers enormous opportunities for businesses and society at large. That is why it is important to promote inclusive green private sector development by equipping businesses with the relevant skills and knowledge and ensuring a conducive business environment.

The "green and inclusive business" concept emerged, at first, with the growing problem of environmental issues like environmental quality, and the accelerating rate of depletion of natural resources made the organisation concerned about sustainability of economic development.

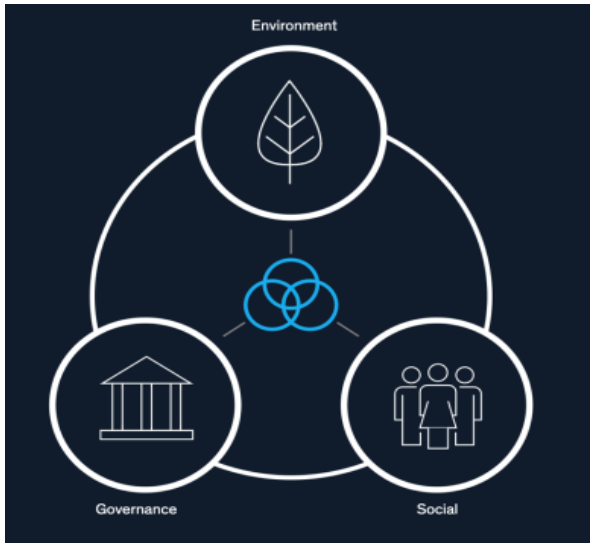
Green Inclusive businesses should promote sustainable development in all its dimensions – economic, social and environmental. Through their products and services, they contribute to the protection of the environment, the climate, biodiversity and natural ecosystems, they empower households, and promote equitable opportunity.

Eco-innovation

Eco-innovation promotes green growth and encourages a green economy. Eco-innovation is nothing but the technologies, product services that reduce environmental risk by minimising and correcting environmental damage to air, soil, water, waste related problems, noise and ecosystem. It measures, prevents and limits the damage in the environment.

The ESG framework

Companies can demonstrate their commitment, ambitions and actions to sustainable development through the ESG framework. ESG helps stakeholders understand how an organisation is managing risks and opportunities related to Environmental, Social, and Governance criteria (sometimes called ESG factors).



Source: https://www.mckinsey.com/about-us/social-responsibility/2021-esg-report/overview

Environmental

Environmental factors refer to an organisation's environmental practices and impact(s). These include greenhouse gas emissions, management of natural resources and the firm's overall resiliency against physical climate risks.

Social

The social pillar refers to an organisation's relationships with employees, suppliers and stakeholders. Examples of factors that a firm may be measured against include fair wages and employee engagement but also an organisation's impact on the local communities as well as environmental and labour standards of suppliers.

Governance

Corporate governance refers to how an organisation is led and managed, that means how managers objectives are aligned with stakeholder expectations, what types of internal controls exist to promote transparency and accountability on the part of leadership.

The 17 objectives are interrelated and often the key to one's success will involve the issues most frequently linked to another. They can be aggregated as follows:

- Eradicate poverty and hunger, guaranteeing a healthy life,
- Universalize access to basic services such as water, sanitation and sustainable energy,
- Support the generation of development opportunities through inclusive education and decent work,
- Foster innovation and resilient infrastructure, creating communities and cities able to produce and consume sustainably,
- Reduce inequality in the world, especially that concerning gender,
- Care for the environment combating climate change and protecting the oceans and land ecosystems,
- Promote collaboration between different social agents to create an environment of peace and sustainable development.

Think about the characteristics/main personal features of the inclusive green entrepreneur. Present your findings in class.

Analyse the 17 SDGs: choose one and think about actions that you and your school can do to meet this specific goal. Present your findings in class

REFERENCES

- The World Bank: Inclusive green growth: the pathway to sustainable development. Main report. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/368361468313515918/main-report
- OECD. Inclusive green growth: For the future we want. Article. https://www.oecd.org/greengrowth/futurewewant.htm
- International Journal of Innovative Science and Research Technology: A Study on Inclusive Green Growth through Green Business. Anjana Singha Research scholar. https://ijisrt.com/wp-content/uploads/2019/06/IJISRT19MY711.pdf
- UN Environment's Green Economy Initiative (GEI). https://www.unep.org/explore-topics/green-economy/why-does-green-economy-matter/what-inclusive-green-economy
- UN environmental programme: https://www.unep.org/
- Website of Amnesty International Slovenia: https://www.amnesty.si/
- OECD website page on Green growth and sustainable development: https://www.oecd.org/greengrowth/
- The 17 Sustainable Development Goals: https://sdgs.un.org/goals
- Explaining the Circular Economy and How Society Can Re-think Progress | Animated Video Essay: https://www.youtube.com/watch?v=zCRKvDyyHml

- Baraka Original Theatrical Trailer: https://www.youtube.com/watch?v=ZSfFHxyYJJA&feature=youtu.be
- A European Green Deal: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
- The European Entrepreneurship Competence Framework (EntreComp): https://ec.europa.eu/social/main.jsp?catId=1317&langId=en
- The EU SWITCH to Green Flagship Initiative. https://www.switchtogreen.eu/home/
- The EU SWITCH to Green Flagship Initiative. An inclusive green economy. https://www.switchtogreen.eu/inclusive-green-economy/
- Koiki company website: https://koiki.es/en/home-koiki-english/
- Ecodome company website: https://www.ecodome.es
- Ecoalf company website: https://ecoalf.com/en-eu
- Lestoc company website: https://www.lestoc.com
- La Fageda project: https://www.fageda.com
- Hemper company website and online shop: https://hemperstore.com
- Il Giardinone Cooperativa Sociale company website: https://www.ilgiardinone.it/english/
- Museum Nord website: https://www.museumnord.no/en/home/
- Sfridoo project: https://www.sfridoo.com/en/
- Green Economy Coalition (GEC), "Principles, Priorities and Pathways for Inclusive Green Economies: Economic transformation to deliver the SDGs", July 2019. https://www.greengrowthknowledge.org/research/principles-priorities-and-pathways-inclusive-green-economies-economic-transformation
- Andrew Norton, Yvo De Boer, "Why social inclusion matters for green growth" 1st June, 2016. https://www.greeneconomycoalition.org/news-and-resources/why-social-inclusion-matters-green-growth
- Connect4Climate, Inclusive Green Growth. https://www.connect4climate.org/infographics/inclusive-green-growth
- Geisel Garcia Grana, "How to combine inclusive green growth and private sector development?". 11th, October 2022. https://globalcad.org/en/2022/10/11/inclusive-green-growth/
- Acciona, What is sustainable development and how to achieve it. https://www.acciona.com/sustainable-development/?_adin=02021864894
- UN environmental programme, What is "Inclusive Green Economy". https://www.unep.org/explore-topics/green-economy/why-does-green-economy-matter/what-inclusive-green-economy
- McKinsey&Company, 2021 ESG Report, Accelerating sustainable and inclusive growth. https://www.mckinsey.com/about-us/social-responsibility/2021-esg-report/overview
- Acciona, What is sustainability? https://www.activesustainability.com/sustainable-development/what-is-sustainability/?_adin=11551547647
- Ellen Macarthur Foundation, Bringing office furniture full circle: Ahrend. https://ellenmacarthurfoundation.org/circular-examples/bringing-office-furniture-full-circle
- Corporate Finance Institute. What is Environmental, Social and Governance. https://corporatefinanceinstitute.com/resources/esg/esg-environmental-social-governance/
- AYR. The sustainability platform. https://new-european-bauhaus.europa.eu/get-inspired/inspiring-projects-and-ideas/ayr-sustainability-platform_en
- Aria project. https://redosgr.it/en/aria/
- HM Government. Mobilising Green Investment 2023. Green Finance Strategy. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1149690/mobilising-green-investment-2023-green-finance-strategy.pdf
- Climate Culture Pavillon project. https://new-european-bauhaus.europa.eu/get-inspired/inspiring-projects-and-ideas/climate-culture-pavilion_en

PRACTICAL ACTIVITIES

Activity 1: Empathy – skill for companies with green inclusive purposes

General information	
Name	**Empathy – skill for companies with green inclusive purposes**
Purpose of the activity	To develop skills for the transition to a green inclusive economy, which requires adoption of new sustainable economic models and a different approach to development, with a reconfiguration of society mindset back to humanity
Target group	VET students
Group briefing	The teacher offers students an introduction and support for the individual discovering of the green inclusive economy topics such as: sustainable development; circular economy; climate changes and migration; global agreement on sustainable development goals.
Estimated type and size of the group	No special abilities are required, just a positive attitude. The activities are meant to be organised as individual pre-class activities and in-class work in smaller groups of 4 – 5 students. The maximum number of students involved would be 25. Students should only use cell phones and the school`s e-classroom as they usually do during regular activities in the program, when working online or searching for study materials.
Learning outcomes/ objectives	To learn about green inclusion, sustainable development and the 2030 sustainable development goals (SDG). To learn and understand why it is important to be emphatic while researching entrepreneurial surroundings. To develop future entrepreneurial skills for quality green and inclusive decision making by being empathic and creative.
Activity outline	
Goals	• Raise awareness of responsibility on individual and collective basis • Develop and/or empower the ability of empathy • Improve the ability to recognize green and inclusive directed practice • Improve the ability of team-working • Encourage cooperative, positive and empathic creative thinking
Duration	IN CLASS ACTIVITY – INITIAL LESSON (45 minutes) HOME ACTIVITY – BEFORE LESSON (individual home task) IN CLASS ACTIVITY – LESSON part 1 (45 minutes) IN CLASS ACTIVITY – LESSON part 2 (45 minutes) HOME ACTIVITY – BEFORE LESSON (individual home task) IN CLASS ACTIVITY – FINAL LESSON (45 minutes)

Task description	**IN CLASS ACTIVITY – INITIAL LESSON (45 minutes)** • Introduction and discussion about the topic • Checking the level of awareness of global problems and motivation for the subject among the students. • Information about goals, learning outcomes and working program • Group formation **HOME ACTIVITY – BEFORE LESSON** (Individual work from lesson to lesson) Assumption: Students are already used to work online and able to find study materials in our school`s e-classroom during regular activities in the program. Students get a mail message with a link to a 1-minute-long instruction video (created with video online app). In the video, students are first instructed to find the subject matter, the pptx presentation in the e-classroom, links to videos related to the green inclusion topics, to watch them, read them and to select essential information. **Possible topics**: Climate change, Migration, No hunger - Past and present initiatives, Plastic pollution, Carbon footprint, Circular economy, No waste economy, Zero km, Amazonian deforestation, Biodiversity, Global community, Sustainable development. **IN CLASS ACTIVITY – LESSON part 1 (45 minutes)** Assumption: Students are assembled in pre-formed working teams. After checking the related home activities and giving students feedback on their work, the teacher briefly reviews the topics and the accomplished tasks. The teacher leads the students to the first task, a new exercise to empower the ability of empathic and creative problem defining. The teacher introduces the exercise, a situation, where students are asked to try to "wear someone else's shoes" and discover the related problems through their eyes. This time students work in pre-formed groups; every group gets its own character; they wonder together how this "character" would see and want to solve a problem. They should prepare a description of the problems and desired solutions related to the situation on a working sheet and present it to the other students, who should guess what "character" they were. (Situations and characters should be related to the upper listed topics.) In this way the students get to know how to better understand and respect different points of view, understand others needs and desires. **IN CLASS ACTIVITY – LESSON part 2 (45 minutes)** The teacher leads the students to the next task, a case study in creative finding solutions and real brainstorming. The teacher introduces a new problematic situation and discusses it with the students. The situation should be related to the picked topic as upper listed. After the common discussion, the students are asked to brainstorm in pre-formed working groups and to find a green and inclusive creative solution for the situation. In this way the students get to know in effect

	how to brainstorm, rate ideas and pick the best solution using information from the first part of the lesson – different points of view! **HOME ACTIVITY – BEFORE LESSON** (Group Work from lesson to lesson) Each group is asked to prepare a pptx presentation of their solution to the problem and upload it in the e-classroom. **IN CLASS ACTIVITY – FINAL LESSON (45 minutes)** Each group presents the analysed problem and the best rated solution. Finally, students evaluate theirs and the teacher`s work through an on-line app.
Supporting materials (materials needed for the lecture)	
Websites containing theoretical concepts/additional sources: UN environmental programme: https://www.unep.org/ Website of Amnesty International Slovenia: https://www.amnesty.si/ OECD website page on Green growth and sustainable development: https://www.oecd.org/greengrowth/ The EU SWITCH to Green Flagship Initiative. An inclusive green economy: https://www.switchtogreen.eu/inclusive-green-economy/	

Activity 2: The purpose of a company in the framework of the green and inclusive economy

General information	
Name	**The purpose of a company in the framework of the green and inclusive economy**
Purpose of the activity	To raise awareness of the green and inclusive economy among vocational training students through real initiatives
Target group	VET students
Group briefing	Teachers will help learners to identify learning outcomes
Estimated type and size of the group	Ideally a group of more than 10 and less than 25 students. It is recommended for students with the ability to work autonomously and with a high level of understanding and reflection.
Learning outcomes/ objectives	To understand the theoretical parts of: • Green Economy • Inclusive Economy • Sustainable development • Sustainable Development Goals To identify the characteristics of green and inclusive economies and the goals of sustainable development through real initiatives. To Reflect on the purpose of a company
Activity outline	
Goal	To analyse international green and inclusive economy initiatives. To detect green and inclusive solutions to a problem or need and evaluate the learning acquired. To reflect on the purpose of a company
Duration	• 10 minutes: Awareness-raising through BARAKA Trailer and presentation of the dynamic • 30 minutes: Key Concepts • 30 minutes: Getting to Know Real Initiatives • 30 minutes: Conclusions • 20 minutes: Feedback
Task description	The activity consists in answering the question: What is the purpose of a company? To do so, we will review the key concepts, work on some companies to identify how they are aligned to the sustainable development goals and how they work on a green and inclusive economy. GOAL: Students will be able to evaluate successful inclusive green economy

	initiatives aligned with Sustainable Development Goals to reflect on the purpose of companies. KEY CONCEPTS: Teachers will remind key concepts about: • Inclusive Economy • Sustainable development • Sustainable Development Goals • Purpose of the company This part can be done through peer-to-peer co-teaching. Four groups of students are created, and each group is assigned a topic. These groups will be the experts on their subject. The teacher gives them the theoretical part to prepare and present in 2 minutes to the rest of the class. To continue with the dynamics, it is recommended to create new groups mixing "experts" in the four topics worked on. GETTING TO KNOW REAL INITIATIVES: Each group will be assigned two or three cases (it depends from the n. of people in the class). After reading and viewing the initiatives, as a group you will have to answer the following questions: • How does the green economy work? What characteristics can be identified? • Do you work in an inclusive economy and how do you do it? • Which of the Sustainable Development Goals does the initiative align with? **Some good practices/initiatives (click to check):** • Koiki • Ecodame • Ecoalf • Lestoc • Fageda • Hemper • ilgiardinone • Museum Nord • Sfridoo CONCLUSIONS: Create a creative team mural identifying the contributions of the green and inclusive economy and the Sustainable Development Goals by answering the following question: What should be the purpose of a company? FEEDBACK: The groups will present their mural. The teacher will conclude the session with the learnings and conclusions.
Supporting materials (materials needed for the lecture)	

Websites containing theoretical concepts/additional sources:

UN Environment's Green Economy Initiative (GEI): https://www.unep.org/explore-topics/green-economy/why-does-green-economy-matter/what-inclusive-green-economy

The EU SWITCH to Green Flagship Initiative: https://www.switchtogreen.eu/home/

Baraka Original Theatrical Trailer: https://www.youtube.com/watch?v=ZSfFHxyYJJA&feature=youtu.be

A European Green Deal: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

Explaining the Circular Economy and How Society Can Re-think Progress | Animated Video Essay: https://www.youtube.com/watch?v=zCRKvDyyHml

The 17 Sustainable Development Goals: https://sdgs.un.org/goals

Best practices/case studies to be assigned to students

Koiki company website: https://koiki.es/en/home-koiki-english/

Ecodome company website: https://www.ecodome.es/

Ecoalf company website: https://ecoalf.com/en-eu

Lestoc company website: https://www.lestoc.com

La Fageda project: https://www.fageda.com/

Hemper company website and online shop: https://hemperstore.com

Il Giardinone Cooperativa Sociale company website: https://www.ilgiardinone.it/english/

Museum Nord website: https://www.museumnord.no/en/home/

Sfridoo project: https://www.sfridoo.com/en/

Activity 3: Green inclusion: inside and outside school

General information	
Name	**Green inclusion: inside and outside school**
Purpose of the activity	To raise awareness of the green and inclusive economy among SEN students through cooperatives and project-based learning. Specifically, crucial goals include: • improved human well-being and social equity, • significantly reducing environmental risks and ecological scarcities.
Target group	SEN students having speech and language difficulties
Group briefing	Teachers will help learners to identify: • weaknesses to overcome, • strengths to define individual tasks, • learning outcomes to reach.
Estimated type and size of the group	Ideally 5 groups with 5/6 students each A total of max 25-30 students
Learning outcomes/ objectives	• To identify the research topics students would like to focus on by gathering information. • To increase students understanding of the planning process for implementing an action research project. • To discuss data collection strategies and analysis of the empirical material students will collect. • To consider the claims that students can make after analysing data. • To discuss ways of modifying practices based on students' findings. • To explore ways of sharing students' findings. • To create a final output: **PLANT MARKERS.** **CONTENTS** Students will be helped by teachers to understand the **theoretical parts** of: • Green Economy • Inclusive Economy • Sustainable development • Wood as a 3D Printing Material
Activity outline	
Goals	• Reflecting on the purpose of a green company • Spotting green and inclusive solutions to a problem or need and evaluate the learning acquired • Identifying and assessing students' individual and group strengths and weaknesses

	• Exploiting one's best competencies, staying focused • Developing business ideas in a proactive and creative way • Developing financial and economic know-how • Involving stakeholders
Duration	**FIRST MEETING** 10': Awareness raising 10': Key Concepts 30': Task division **WORKING MEETINGS (around 10)** 50': Each group works on its own task **FINAL MEETING** 15': Feedback from students
Task description	The activity consists in answering the question: What should we do to start up a company? GOAL: Students will be able to evaluate successful inclusive green economy initiatives aligned with Sustainable Development Goals to reflect on the purpose of companies. **KEY CONCEPTS**: Teachers will remind key concepts about: ● Green Economy ● Sustainable development ● Environmental, Social, and Governance (ESG) Factors As for the TASKS (practical activities) within our project-based learning approach, students will be asked to set up a simulated company where to create, by using CAD software, wooden QR codes. Such QR codes have to be made by wood and used as PLANT MARKERS to bury in pots or to hang directly on trees and plants. Specifically, the 5 groups will be in charge of: ● **Setting up the green company:** a group is in charge of defining all the administrative issues related to setting up a new company); due to the fact that many written documents are necessary during this first phase, a number of "buddy" students will be introduced in the group as support. ● **Defining actions:** a group will be in charge of defining the expected activities to be carried out within the project: creating a company catalogue, promoting the company among local stakeholders. ● **Budget Managing**: a group will be in charge of the budget: they will be given a sum of money to buy the necessary tools to start up a 3D GREEN PRINTING PROJECT: buying a 3D printer allows the usage of biomass derived from trees, buying the woody biomass)

	• **Contacting local stakeholders**: privates, local green houses, farmers to ask for cooperation as well as to promote and sell products. This group will also be responsible for creating and managing social media for promotion and dissemination activities. • **Creating the wooden QR code:** practical workshop
Additional information	In line with the Entrecomp guidelines, our project enables students "to nurture their personal development, to actively contribute to social development, to enter the job market as employee or as self-employed, and to start-up or scale-up ventures, which may have a cultural, social or commercial motive". Schools can promote entrepreneurial learning, basically made up of two main elements: 1. Developing increasing autonomy and responsibility in acting upon ideas and opportunities to create value. 2. Developing the capacity to generate value from simple and predictable contexts up to complex, constantly changing environments.
Supporting materials (materials needed for the lecture)	
The European Entrepreneurship Competence Framework (EntreComp): https://ec.europa.eu/social/main.jsp?catId=1317&langId=en	