A Joint Business and Higher Education Initiative for a Greener Future

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SustainEd

Empowering Future Leaders with Sustainable Knowledge

Sustainable Learning Experience Teaching Manual

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1. Introduction, aims & Objectives.

Working for a greener and sustainable future is crucial to ensure the well-being of our planet and future generations. Environmental degradation, driven by pollution and resource depletion, threatens biodiversity and human health. By adopting sustainable practices, we can mitigate climate change, preserve natural habitats, and promote a healthier ecosystem. Additionally, a green economy fosters innovation, creating new job opportunities and driving economic growth. Sustainable development also ensures equitable resource distribution, reducing poverty and enhancing quality of life globally. Therefore, striving for a greener future is not only an environmental imperative but also a socio-economic necessity.

Green and digital transitions require future-proof education, research and innovation, in close cooperation with the related industries and stakeholders and the significant disparities in digital skills across the EU must be overcome. Students and staff across the EU need to be equipped with the green and digital skills for the future and the innovation and technological potential of universities needs to be put at work to tackle related societal challenges. Recognizing the importance of all these challenges, the diverse team of the SustainEd project is highly motivated to prepare Higher Education Students for effective participation in the green transition.

At SustainEd, we are committed to revolutionising sustainability education within higher education institutions. The main goal of SustainEd is to equip university students with the knowledge, skills, and competencies needed to actively participate in the green transition and contribute to the achievement of the Sustainable Development Goals (SDGs).

We aim to revolutionize higher education by developing an innovative learning program that integrates living labs and WebQuests. This will enhance students' understanding of sustainability and circular economy concepts, develop essential green skills, and prepare them for active participation in the green transition.

For achieving its purpose, SustainED has developed three main Product Results:

1. **SustainEdX, The Sustainable Learning Experience Toolkit for HE Students:** an innovative toolkit combining WebQuests and living labs to enhance university students' sustainability skills through practical, real-world learning experiences in multiple languages.
2. **SustainEdM, Sustainable Learning Experience Teaching Manual: a** comprehensive manual for educators to effectively apply the SustainEdX Toolkit, featuring adaptable teaching strategies, assessment methods, and flexible learning resources.

3. **SustainEdG, a Guide to Designing Effective Educational Experiences**: a practical guide for educators to design and implement educational resources, blending WebQuests and living labs to develop green skills and sustainability knowledge.

What is and why we propose to use WebQuests?

WebQuests are based on a constructivist, learner-centered and inquiry-oriented learning approach where students are expected to be proactive, seeking to solve real-life challenges with the use of digital tools. It is designed to promote critical thinking, problem-solving, and collaborative learning. In higher education, the use of WebQuests is proposed to enhance student engagement and autonomy by integrating technology into the curriculum.

Following Challenge-based learning methods, WebQuests are structured to guide students through a process of exploration and discovery, often involving real-world issues and scenarios. This approach encourages students to develop research skills, evaluate sources, and synthesize information from various perspectives. By engaging in authentic tasks, students can apply theoretical knowledge in practical contexts, bridging the gap between academic learning and real-world application.

The flexibility of a WebQuest activity ensures that all students could engage with the material in a way that suits their learning preferences, styles and rhythms. Additionally, WebQuests promotes the development of essential Digital competences.

Finally, WebQuests promote peer-learning and collaborative learning. Students often work in groups, sharing insights and developing solutions collectively. This collaborative aspect not only enhances social skills but also prepares students for the teamwork-oriented nature of the modern workforce.

What is the purpose of this manual?

This Teaching Manual supports university educators in applying the SustainEdX Toolkit for achieving maximum learning effect. This manual covers all aspects of the education kit including objectives, learning outcomes, suggested assessment methods, and teaching strategies. The manual gives HE lecturers the necessary flexibility to adapt the learning resources to their own teaching style and the needs of their students. It also provides examples of effective teaching strategies, assessment methods, and other resources that instructors can use to enhance their teaching, based on the consortium experience in the pilot phase.

Aims and structure.

Introducing WebQuests in higher education offers a dynamic and effective approach to learning. This active-learning method helps teachers to engage students in meaningful, technology-integrated activities that promote critical thinking, digital literacy, and collaborative skills. Based on a challenge-based learning approach, by bridging the gap between theoretical knowledge and practical application, WebQuests prepare students for the complexities of the modern world, making them a valuable tool in higher education.

As it has already been explained, the main aim of this manual (hereinafter, SustainEdM) is to help Higher Education lectures to understand and effectively the SustainEdX Toolkit, featuring adaptable teaching strategies, assessment methods, and flexible learning resources in their own classrooms.

SustainEdM contributes to achieving the overall aim of the SustainEd project as it will provide the necessary pedagogical and instructional support to HEI lecturers on how to apply the developed sustainable learning program for university students. In this way, SustainEdM will directly contribute to the professional development of university academic staff through tailored guidance on applying the combined method of living labs and WebQuests for achieving maximum learning effect.

SustainEdM lays the foundation for integrating sustainable development and circular economy concepts across HE disciplines at all levels

This will be attained by sharing in this SustainEdM our pedagogical approach for teaching in Higher Education, which is mainly based on active learning teaching methods and an intensive use of digital tools; locating the resources created within the framework of SustainEd and clarifying how they will be used in practice and their connection to the teaching process; describing the pedagogical design of each WebQuest created, including its theoretical foundations, learning outcomes, aims, skills, activities, expected workload and the assessment framework).

SustainEdM includes several Webquests related to the following topics:

- Sustainability & ESG
- Sustainable supply chain management
- Sustainable finance
- CE Business models

Each WebQuest has been developed by the SustainEd consortium and all of them are available from the SustainEd website: https://sustain-ed.eu/sustainedx/

The target group

The target groups to whom *SustainEdM* is aimed at are primarily, Higher Education Teachers. However, the training manual could be also suitable for VET teachers. As an indirect target group, the consortium identified students/trainees as SustainEd end-users.

2. The SustainED teaching approach.

The SustainEd teaching approach is a transformative framework that prioritizes active learning, student-centered methodologies, and the integration of digital tools to prepare higher education students to address the challenges of green and digital transitions. Rooted in the belief that effective education must bridge the gap between theoretical knowledge and practical applications, this approach equips students with the skills and competencies necessary to tackle sustainability challenges in real-world contexts. By leveraging innovative teaching strategies such as Challenge-Based Learning (CBL) and WebQuests, the SustainEd approach ensures that learning is both impactful and future-focused.

Active teaching methods are the cornerstone of this approach. These methods emphasize “learning by doing”, where students engage in hands-on experiential learning activities that encourage critical thinking, problem solving, and collaboration (González-Cacho & Abbas, 2022). Within this framework, CBL is a dynamic pedagogical approach which places students at the heart of the learning process by challenging them to identify, investigate, and propose actionable solutions to real-world problems (Gallagher & Savage, 2020). For example, students may explore ways to reduce plastic waste in their local communities or develop innovative strategies to improve energy efficiency in urban areas. These challenges not only enhance students’ understanding of sustainability concepts, but also help them develop practical skills, such as systems thinking and resource management, which are essential for addressing complex environmental issues.

A key strength of the SustainEd teaching approach lies in its student-centered nature. Recognizing that students have diverse learning preferences, styles, and pace, this approach fosters an inclusive environment in which all learners can thrive. Students are empowered to take ownership of their educational journey, actively engage with the content, and participate in collaborative problem-solving activities. Educators in turn act as facilitators, guide students through the learning process, and encourage them to reflect on their experiences. This shift from a traditional teacher-led model to a learner-centered approach ensures that students are not passive recipients of information but are active participants in their

education (Van Den Beemt et al., 2023). They also nurture a sense of autonomy and responsibility, which are critical for lifelong learning and professional success.

Integral to the SustainEd teaching approach is the intensive use of digital tools, in particular WebQuests. These structured, inquiry-based activities guide students step by step through meaningful tasks, encouraging them to dive into online resources, make sense of the information they find, and come up with solutions to real-world challenges (Campillo-Ferrer & Miralles-Martínez, 2023). For instance, WebQuest may involve students researching sustainable supply chain practices or investigating the financial implications of transitioning to renewable energy. By engaging with curated digital content, students develop critical digital literacy skills, such as evaluating the credibility of sources, synthesizing information, and effectively communicating findings.

The use of WebQuests enhanced the relevance and applicability of learning. By connecting academic content to real-world problems, WebQuests provides students with opportunities to apply their knowledge in practical contexts. This not only deepens their understanding of sustainability concepts but also prepares them for professional roles that demand adaptability, collaboration, and innovative thinking. Moreover, the flexibility of WebQuests allows educators to tailor activities to the specific needs of their students, ensuring that all learners can meaningfully engage with the material.

Compared with traditional teaching methods, the benefits of using WebQuests and digital tools are varied. Traditional approaches often rely on lectures and rote memorization, which can limit student engagement, and fail to connect learning with real-world applications. In contrast, WebQuests creates interactive, technology-enhanced learning environments that actively involve students in the educational process (Campillo-Ferrer & Miralles-Martínez, 2023). This fosters deeper engagement and motivation as students see the immediate relevance of what they are learning. WebQuests also promote collaborative learning as students often work in groups to complete tasks, share insights, and develop collective solutions. This prepares them for the teamwork-oriented nature of the modern workplace and sustainability initiatives.

WebQuests' digital aspect offers unparalleled opportunities for global learning. Students can access a wide range of perspectives, case studies, and resources from around the world, thus enriching their understanding of sustainability challenges and solutions in diverse contexts. Furthermore, the integration of digital tools supports the development of essential 21st-century skills such as digital literacy, critical thinking, and problem-solving, which are vital for success in a rapidly evolving world (Gudoniene et al., 2021).

In this sense, the SustainEd teaching approach is a forward-thinking framework that combines active learning, student-centered methodologies, and digital tools to revolutionize sustainability education in higher education. By emphasizing hands-on, technology-integrated learning experiences, it equips students with the knowledge, skills, and competencies needed to actively contribute to green transition and address pressing global challenges. Through the use of innovative tools such as WebQuests and the implementation of Challenge-Based Learning, the approach ensures that students are not only prepared for the complexities of the modern world but also empowered to become agents of change in building a more sustainable future.

3. Implementation of the resources.

The contents that you will find on the website are supposed to support the main goal of the project: to prepare Higher Education Students to effectively and actively participate in the green transition. Therefore, all the information that is found on the website must be adapted to the students' experience, managing to create an attractive, motivating experience focused on solving real challenges. This is facilitated by incorporating a Living Lab approach and methodology to the process. According to the European Network of Living Labs, the current definition for living labs given is the following:

> "Living Labs are open innovation ecosystems in real-life environments based on a systematic user co-creation approach that integrates research and innovation activities in communities and/or multi-stakeholder environments, placing citizens and/or end-users at the centre of the innovation process" (ENoLL, 2025).

Living Labs play a pivotal role in fostering user-centered education by creating a learning environment that promotes experimentation, collaboration, and real-world problem-solving. These innovative learning spaces can serve as dynamic ecosystems where users, researchers, educators, and industry partners can come together to co-create, test, and refine new ideas and solutions. In this context, Living Labs offer a unique platform for experiential learning, where learners are not merely passive recipients of knowledge but active contributors to the learning process.

This approach aligns with the constructivist theory of education, which posits that learners construct knowledge through meaningful interactions with their environment and peers. One of the key advantages of this approach is its ability to bridge the gap between theory and practice. Traditional educational models often

rely on abstract concepts and theoretical knowledge, which can be challenging to apply in real-world scenarios. Living Labs, on the other hand, provide a hands-on learning experience that allows students to engage with real-world problems and develop practical skills. This experiential learning approach enhances students' understanding and retention of knowledge, making education more relevant and impactful. Moreover, Living Labs foster a culture of transdisciplinary collaboration and co-creation. Students, educators, and industry partners work together on projects, sharing their expertise and insights. This collaborative approach not only enriches the learning experience but also prepares students for real life situations. By working on interdisciplinary projects, students develop critical soft skills such as teamwork, communication, and problem-solving, which are essential for their future personal and professional development.

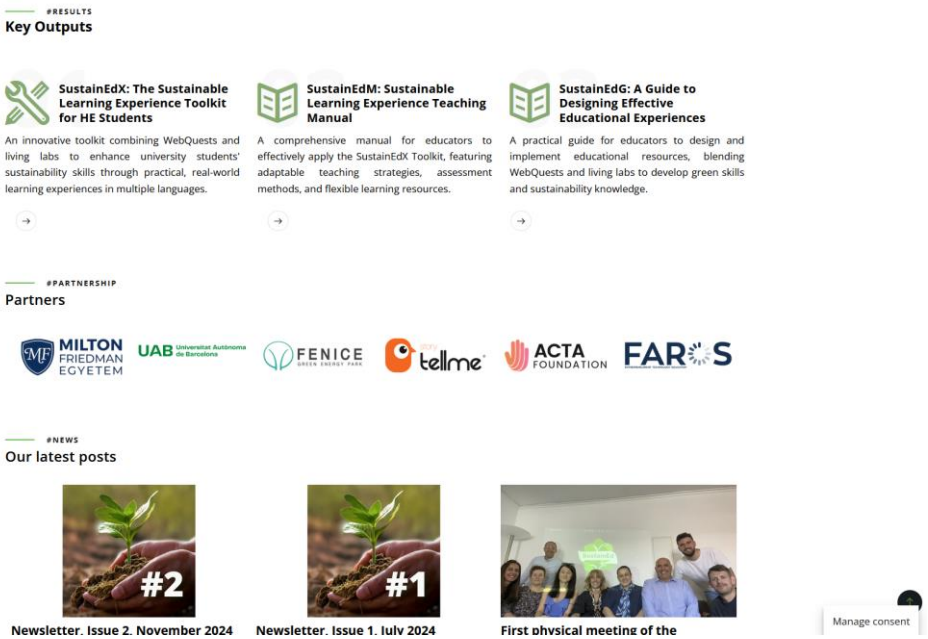
Another important aspect of Living Labs is their focus on user-centered design. In educational terms, this means placing the needs, preferences, and experiences of students at the forefront of the learning process. Living Labs adopt an iterative approach, where feedback from students is continuously gathered and used to refine and improve educational practices and technologies. This feedback loop ensures that the learning experience is constantly evolving and adapting to meet the diverse needs of students. In operative terms this also means that learners must keep in mind the end-user of the process and design with them in mind. That might imply certain techniques for empathizing with the user or making them participants in the design process.

Furthermore, Living Labs promote an entrepreneurial mindset among students and learners. By working on real-world challenges and collaborating with real stakeholders, students are encouraged to think creatively and develop innovative solutions that can potentially create impact. This entrepreneurial approach not only enhances their problem-solving skills and motivation but also instills a sense of ownership and agency in their learning journey throughout the process.

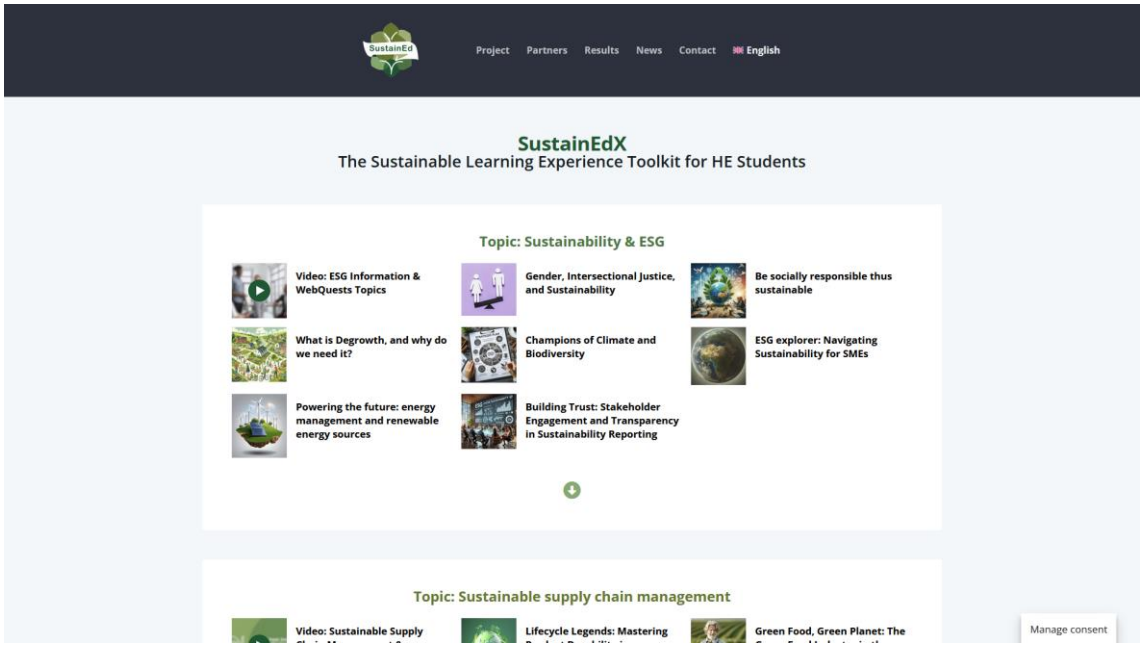
Lastly Living Labs also provide a platform for the integration of cutting-edge technologies in education, as is the case with the SustainED project incorporating Webquests in the process. This allows educators to explore new pedagogical approaches and enhance students’ learning experience with the integration of these intuitive and interactive elements organized in the SustainedX resources package.

The design of the SustainEd website is very simple and intuitive. It is designed so that teachers can quickly search and find through the available WebQuests design the one most suitable for their needs.

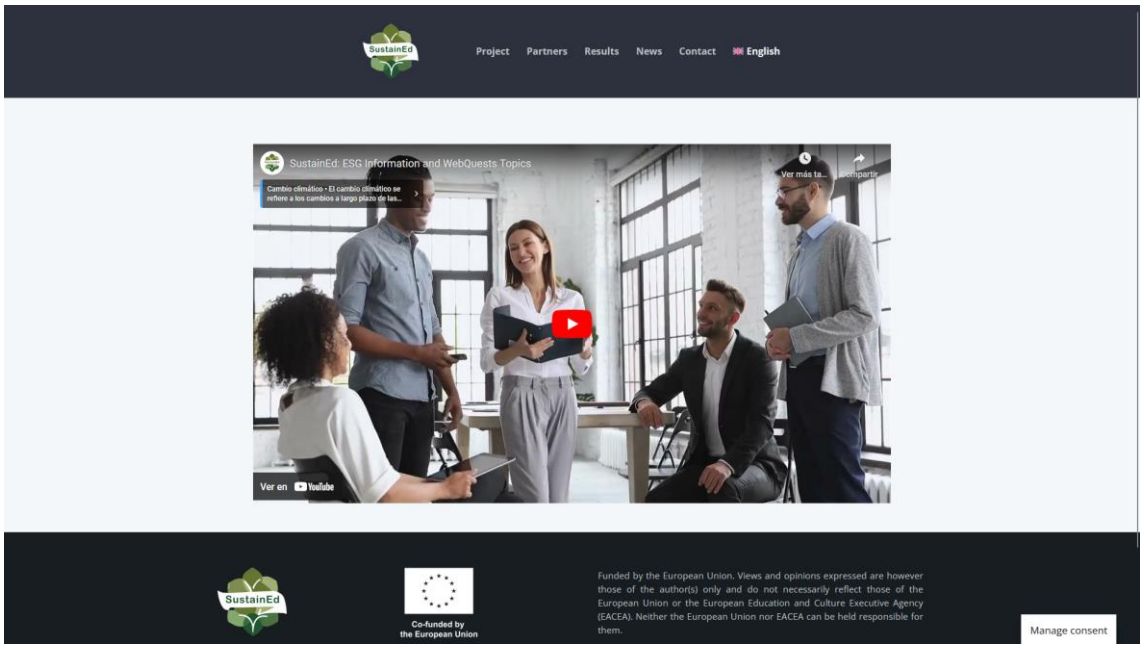
Once you access the website, on the main menu you will find the option to directly access the three SustainEd project results.



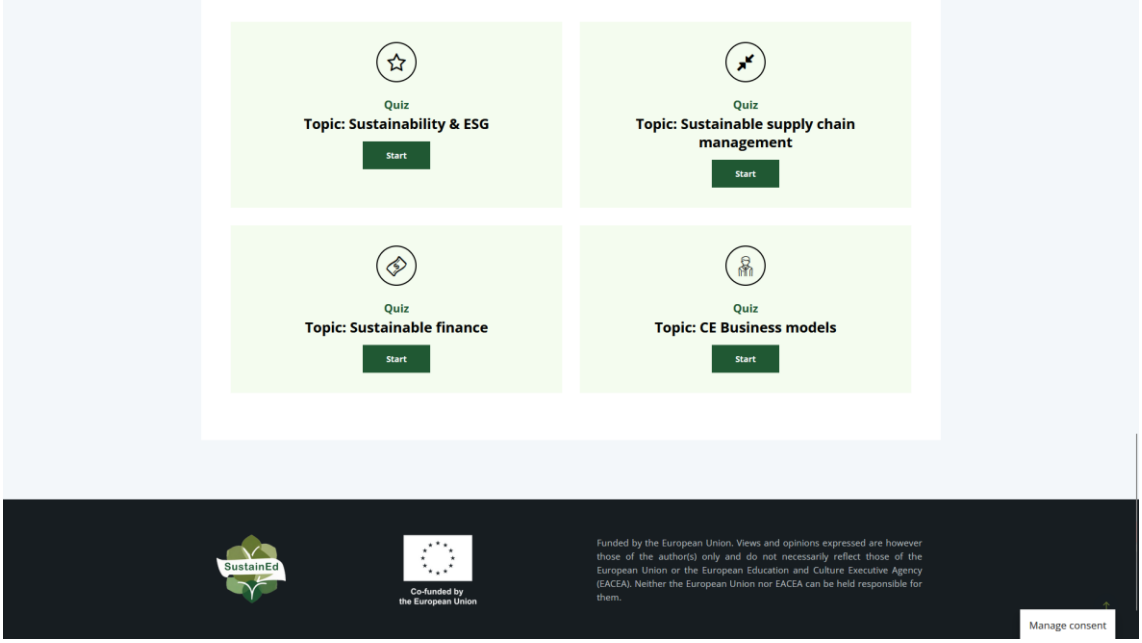
The first of these (SustainEdX: The Sustainable Learning Experience Toolkit for HE Students) is where all the WebQuests designed and available in open format can be found.



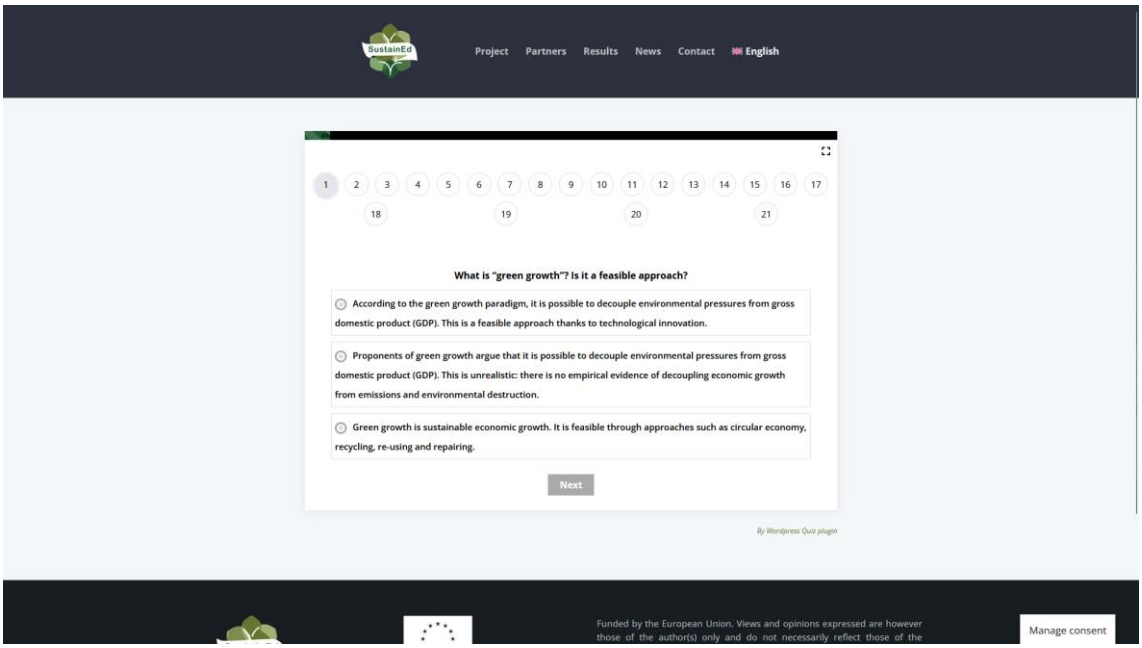
Once you access the Toolkit section you will find the WebQuests grouped in the four selected topics. Beyond the WebQuests, for each topic, you will find a short video justifying the importance, topicality and interest of the topic in question.



Finally, at the end of the toolkit, you will find the Quizzes designed for each of the topics. You can use them to assess your students.



In all cases, the format of the Quizzes is similar. You will find a number of multiple-choice items that seek to address key content of the topic in question.



Planning of WebQuests

This section aims to support trainers in the process of planning and facilitating the overall process of carrying out the WebQuests of SustainEd.

As a teacher you should adjust the use of our proposal to the reality of your institution, educational level and student characteristics. Considering the above, the first thing you should do is to open the Sustainable Learning Experience Toolkit for HE Students (SustainEdX), where you will find all the WebQuests developed grouped into four main topics (i.e., Sustainability & ESG, Sustainable supply chain management, Sustainable finance and CE Business models), as well as their corresponding Quizzes.

As mentioned above, the selection of the WebQuests must be coherent with the knowledge, specific competences and transversal competences (i.e. Responsibility & Autonomy) that you wish to work on. To this end, each of the WebQuests presents the list of competences it intends to work on.

However, there could be two main ways of approaching the design of your training program:

(1) Focus on only one of the four proposed topics and work on all the WebQuests proposed in it.

(2) Address all topics, selecting only some of the proposed WebQuests. The number of WebQuests you should select will depend on both your interests and those of the learners, as well as the time available.

The following table specifies all the competences worked on in each of the WebQuests.

Topic	WQ	Knowledge	Skills	Responsibility & Autonomy
Sustainability & ESG	**Be socially responsible thus sustainable**	● Advance understanding of what it means for a business to be socially responsible, what ways can lead to socially responsible operation ● Gain deep knowledge on why social responsibility is important for businesses and how it influences various processes and activities within and outside the business. ● Learning about CSR methods and strategies.	● Able to investigate how companies can respect and promote human rights within their operations and supply chains. ● Understand the importance of diversity and inclusion in the workplace and be able to identify best practices.	● Independently analyse the social reports, CSR activities of businesses. ● Independently develop and implement strategies related to the wellbeing of workers, appropriate working conditions as well as strategies influencing the social environment of the business.
	Champions of Climate and Biodiversity	● A thorough knowledge of biodiversity conservation, climate action, and the Sustainable Development Goals (SDGs) of the United Nations. ● Understanding how these issues are related to one another and how important they are to efforts to promote global	● The capacity to evaluate how human activity affects biodiversity loss and climate change. ● Proficiency in recognizing plans of action and methods to solve environmental issues and advance sustainability.	● Accepting responsibility for one's own choices and activities that support environmental preservation. ● Speaking independently in both personal and professional contexts for climate action and biodiversity conservation.

	Powering the future: energy management and renewable energy sources	● In-depth understanding of energy management principles and practices, including energy action planning, performance metrics, and so forth. ● Advanced knowledge of renewable energy sources (RES) and their integration, including technological aspects and feasibility of solar, wind, hydro, and biomass energy. ● Critical understanding of energy efficiency and sustainability theories, including sustainable development principles.	● Analytical skills related to analysing and identifying areas for improvement, and developing energy-saving measures. ● Competence in conducting feasibility studies and comparing the performance of different RES. ● Proficiency in using assessment tools and methods, such as carbon footprint calculators	● Capability to make informed decisions related to energy efficiency improvement. ● Responsibility for promoting and implementing sustainable energy practices within organisations and communities. ● Commitment to continuous professional development and the education of team members in energy sustainability.

	Gender, Intersectional Justice, and Sustainability	● Awareness of Gender Inequality: Understanding various manifestations of gender inequality globally and locally, such as the gender pay gap, representation in leadership, and access to education and healthcare. ● Understanding Gender Roles and Stereotypes: Learning how societal norms and stereotypes shape expectations and opportunities for different genders. ● Complexity of Identity: Gaining insights into how overlapping identities (race, class, gender, sexuality, ability) affect individuals' experiences of oppression and privilege. ● Environmental Justice: Understanding how environmental issues disproportionately affect marginalized communities.	● Empowerment and Advocacy: Developing strategies for promoting gender equality through legal frameworks, grassroots campaigns, and global initiatives. ● Holistic Approaches to Justice: Analysing policies and practices that consider multiple axes of identity to promote inclusive and effective solutions. ● Critical Thinking and Problem-Solving: Enhancing abilities to analyse complex social issues and propose multifaceted solutions through case studies and real-world examples	● Promotion of Sustainable Practices: Taking responsibility for promoting and practicing sustainability in personal and community contexts. ● Engagement with Movements and Strategies: Actively participating in movements and employing strategies that aim to achieve gender equality and intersectional justice.

	What is Degrowth, and why do we need it?	● Define Degrowth and explain the fundamental concepts informing it ● Illustrate the main critiques to economic growth ● Explain what the dominant paradigm of "green growth" is and why it is highly unlikely ● Identify and explain possible alternatives for socio-ecologically just futures Think critically about the growth-driven economic system and articulate science-informed critiques	● Analyse complex socio-ecological challenges from a critical perspective ● Engage with real-world alternatives and their potential to bring about socio-ecological transformations ● Independently gather and research academic information	● Work in teams on new topics, divide tasks equally, collaborate with peers ● Effectively present and communicate newly acquired Degrowth concepts to peers and lay persons ● Develop a personal interest to further explore the topic
	ESG explorer: Navigating Sustainability for SMEs	● Understand the principles and frameworks of sustainability. ● Gain knowledge of key environmental, social, and governance (ESG) issues and their relevance to business operations as well as the most important legislation background of reporting.	● Develop the ability to analyse sustainability reports and ESG disclosures. ● Acquire skills in stakeholder engagement and communication regarding sustainability performance.	● Demonstrate autonomy in researching and identifying relevant sustainability metrics and indicators for reporting purposes. ● Exercise critical thinking in assessing the materiality of sustainability issues for organizations.
	Building Trust: Stakeholder Engagement and Transparency in Sustainability Reporting	● Principles and frameworks of sustainability reporting, such as GRI and SASB standards. ● Key environmental, social, and governance (ESG) issues and their impact on business operations.	● Ability to analyse sustainability reports and ESG disclosures, assessing their credibility and completeness. ● Engaging with stakeholders and effectively communicating sustainability performance. ● Critical thinking skills to evaluate the materiality of sustainability issues for various organizations.	● Ability to analyse sustainability reports and ESG disclosures, assessing their credibility and completeness. ● Engaging with stakeholders and effectively communicating sustainability performance. ● Critical thinking skills to evaluate the materiality of sustainability issues for various organizations.

Sustainable supply chain management	**Green Food, Green Planet: The Green Food Industry in the Green Supply Chains**	● Basic theoretical knowledge of the principles and practices of the environmentally responsible food industry and green supply chain ● Use of scientific resources in research and analysis of sustainability strategies ● Knowledge of current food market trends and sustainable innovations.	● Developing research capacity in sustainable production practices and green supply chains ● Students will be able to critically analyse sustainability strategies and evaluate their effectiveness ● Students will be able to independently formulate strategies to improve green supply chains and achieve sustainability goals. ● Develop presentation skills, including the ability to present information clearly and convincingly	● In teamwork, they learn how to work together effectively, sharing responsibility and results ● Students develop a responsible attitude towards sustainability and understand its importance for the global environment ● Students will recognize the importance of ethical decision making when developing sustainability and corporate strategies.
	Fair Trade Futures: Ethical Sourcing in Global Supply Chains	● Obtain knowledge of ethical sourcing and fair-trade practices. ● Understand the importance and impact of ethical sourcing and fair-trade practices on communities and the environment.	● Develop skills in mapping and analysing supply chains to identify sustainability hotspots and areas for improvement. ● Acquire skills in supplier engagement, and performance measurement for sustainable procurement.	● Exercise autonomy in making informed decisions regarding supplier selection and relationship management. ● Take responsibility for managing the professional development of individuals and groups. ● Articulate the importance of ethical sourcing and fair-trade practices effectively.

	Lifecycle Legends: Mastering Product Durability in Sustainable Supply Chains	● Basic theoretical knowledge of environmental product development. ● Basic theoretical knowledge of how a sustainable business model works. ● Knowledge of the structure of the Business Model Canvas. ● Basic theoretical knowledge on the possibility of extending the product life cycle.	● Recognize the environmental potential of product development. ● Outline the main elements of a circular business model that are essential for environmentally conscious product development. ● Be able to critically examine environmentally responsible production and identify the barriers that may hinder the operation of an environmentally responsible business model.	● Developing our own understanding of sustainable product development and product life extension ● In unexpected decision situations, independently think through and develop comprehensive, grounded sustainable supply chain management issues based on given resources. ● Responsibly participates in the development and justification of professional views based on the fundamentals of sustainable supply chain management.
	Mastering Sustainable Supply Chain Excellence	● Understand the principles and importance of sustainable supply chain management (SSCM). ● Recognize key components, functions, and processes involved in sustainable supply chains. ● Awareness of the environmental, social, and economic impacts of supply chain decisions.	● Analyse and identify sustainability hotspots and areas for improvement within supply chains. ● Apply SSCM principles to enhance efficiency, reduce environmental impact, and support social equity. ● Evaluate and implement sustainable practices and technologies.	● Manage and improve supply chain processes with a focus on sustainability. ● Make informed decisions balancing economic performance with environmental and social considerations. ● Advocate for and implement sustainability initiatives within supply chain operations.

	Developing a Green Procurement Strategy for SMEs	● Understand the core principles and importance of green procurement. ● Identify key criteria and standards for evaluating suppliers' environmental performance. ● Recognize various eco-friendly products and services that have a reduced environmental impact. ● Learn about budget considerations, including cost categories, potential savings, and financial incentives for sustainable practices.	● Conduct comprehensive research using academic databases and government/NGO websites. ● Develop clear and concise green procurement policies using document processing tools. ● Create checklists and rubrics for evaluating suppliers based on environmental performance. ● Perform budget analysis using financial planning tools like Excel or Google Sheets. ● Use performance tracking tools like KPI dashboards to monitor sustainability metrics. ● Engage stakeholders through effective communication plans, training sessions, and workshops.	● Take responsibility for developing and implementing a green procurement Strategy that aligns with an SME's environmental objectives. ● Lead initiatives to engage suppliers, employees, customers, and the community in sustainable practices. ● Demonstrate autonomy in conducting research and synthesizing information into practical guidelines.
Sustainable finance	**Questing for Sustainable Investing**	● Practical knowledge and advanced understanding of concepts and principles impact investing and venture philanthropy. ● Deeper knowledge of the UN's Sustainable Development Goals (SDGs) and related initiatives contributing to their achievement. ● Practical knowledge of identifying and measuring social and environmental impact of investments.	● Develop skills in analysing investment portfolios through the lens of environmental, social, and governance (ESG) factors. ● Acquire skills in integrating SDGs and ESG considerations into investment decision-making processes. ● Enhancing research and communication skills. ● Presentation skills in front of an audience. ● Learning to tailor investment information for a broader audience.	● Independently analyse the financial and non-financial impacts of investment decisions on sustainability. ● Independently develop and implement sustainable finance strategies.

	Finance for the Future: Explore the Greener Side of Investing	● Advance understanding of concepts and principles of sustainable finance, including green finance, social finance, and impact investing. ● Gain knowledge of sustainable investment strategies, financial instruments, and regulatory frameworks.	● Develop skills in analysing the financial performance of companies and investment portfolios through the lens of environmental, social, and governance (ESG) factors. ● Acquire skills in integrating ESG considerations into investment decision-making processes. ● Enhancing research and communication skills. ● Learning to tailor investment information for a broader audience. ● Gaining practical experience collaborating with media professionals.	● Independently analyse the financial and non-financial impacts of investment decisions on sustainability. ● Independently develop and implement sustainable finance strategies.
	Crowd funding: Alternative & collaborative funding models	● Practical knowledge and advanced understanding of concepts and principles related to the origins of crowdfunding and how it has evolved over time. ● Practical knowledge about the different types of crowdfunding - reward-based, donation-based, equity-based, and debt-based. ● Practical knowledge related to case studies of successful crowdfunding campaigns to understand the strategies behind their success.	● Ability to gather, evaluate, and synthesise information from various sources related to crowdfunding. ● Analyse different crowdfunding campaigns to determine factors contributing to their success or failure. ● Plan a detailed crowdfunding campaign, including setting funding goals, timelines, and promotional activities. ● Presentation skills in front of an audience.	● Develop the ability to manage your time effectively to meet project deadlines. Set personal goals and monitor your progress throughout the WebQuest. ● Cultivate the ability to learn and explore new topics related to crowdfunding independently. ● Understand and respect the ethical considerations in crowdfunding, such as honesty, transparency, and respect for intellectual property.

	Sustainable Impact Detectives: Evaluating SMEs	● In-depth knowledge of specific methodologies and frameworks ● Understanding of data requirements and collection methods ● Advanced knowledge in ESG reporting and communication	● Develop skills to evaluate different impact assessment methodologies and select the most appropriate one for a given SME. ● Ability to apply methodologies to real-world business scenarios ● Skills to develop a data collection plan aligned with the chosen methodology. ● Skills to collect relevant data from the SME, ensuring data quality and consistency. ● Skills to define and calculate key performance indicators (KPIs) and metrics to assess the SME's impact. ● Skills to evaluate an SME's overall impact across economic, social, and environmental dimensions. ● Gaining practical experience collaborating with SMEs.	● Independently research and choose the most suitable methodology for the selected SME. ● Autonomy in designing the data collection plan and selecting data sources. ● Independently develop and calculate key performance indicators (KPIs) and metrics to assess the SMEs impact.

	Developing a Personal SRI Portfolio	● Core principles of Socially Responsible Investing (SRI). ● The importance of Environmental, Social, and Governance (ESG) criteria in evaluating investments. ● Different strategies within SRI, including negative screening, positive screening, and impact investing. ● Asset classes and how they can be incorporated into an SRI portfolio.	● Conduct thorough research on SRI principles and potential investments. ● Evaluate investments based on their ESG performance, using criteria such as environmental sustainability, social initiatives, and governance practices. ● Assess client risk tolerance and financial goals. ● Develop a balanced and diversified investment portfolio that aligns with SRI principles.	● Take responsibility for developing an ethical investment portfolio that aligns with a client's values and objectives. ● Independence in decision-making and portfolio management, ensuring alignment with both financial goals and ethical standards. ● Lead initiatives to promote sustainable finance and responsible investing practices.
CE Business models	**Sustainability in Action: Life-cycle Analysis and Closed-loop Supply Chains**	● Advanced knowledge of life-cycle analysis (LCA), closed-loop supply chains, and environmental impact evaluation techniques. ● Critical understanding of the theories and principles related to sustainability and the circular economy.	● Advanced skills in conducting a life-cycle analysis, identifying critical points, and proposing improvements. ● Innovative competencies for designing and implementing closed-loop supply chain strategies. ● Proficiency in using tools and methods for environmental impact evaluation.	● Autonomously identify opportunities and design strategies for implementation of closed-loop supply chains. ● Promoting higher level of understanding on the topics of life-cycle assessment and closed-loop supply chains among others.

	Envisioning a Sustainable Future: Transitioning to a Circular Economy	● Life Cycle Thinking Approach: How to think from a perspective that drives circular economy. ● Environmental Sustainability and Impacts: Understanding the methodology useful for impact assessment. ● Circular Economy Principles: Learning the various concepts and approaches related to the circular economy	● Analytical Thinking: Identifying key hotspots in environmental assessments and developing strategies to promote a circular approach while considering limitations. ● Problem Solving: Understanding how to advance a circular approach by modifying products or creating services. ● Collaboration: Working collaboratively to generate discussions and identify optimal solutions and effectively communicating the benefits of the proposed solutions.	● Promotion of Sustainable Practices: Take responsibility for advocating and implementing sustainability in both personal and community contexts. ● Responsibility for Choices: Recognize the impact of personal actions and decisions on environmental conservation. ● Engagement with Movements and Strategies: Actively participate in promoting behaviours that align with circular economy principles.
	Circular Horizons - Exploring Sustainable Business Models	● Understanding of several circular economy business models, including product-as-a-service, sharing platforms, and remanufacturing. ● Awareness of the principles and benefits of circular economy practices in promoting sustainability and resource efficiency	● Ability to analyse and evaluate different circular economy business models in terms of their environmental impact, economic viability, and societal benefits. ● Competence in identifying opportunities and challenges associated with implementing circular economy practices in diverse industries.	● Taking responsibility for promoting circular economy principles within business operations and decision-making processes. ● Exercising autonomy in proposing innovative solutions and strategies to transition towards circular business models.

	Designing a Zero Waste Campus	● Principles of the circular economy and its application in zero waste practices. ● Waste reduction strategies and recycling programs. ● Key components and benefits of implementing zero waste initiatives on a campus.	● Identify the key components and benefits of implementing zero waste initiatives on a campus. ● Develop and propose effective waste reduction and recycling strategies. ● Design and implement community engagement initiatives to promote zero waste practices. ● Evaluate and monitor the effectiveness of zero waste programs through data analysis and reporting.	● Take responsibility for developing and implementing practical zero waste initiatives on campus. ● Engaging with the campus community and encouraging participation in sustainability efforts. ● Lead by example, advocating for sustainable practices and inspiring others to participate in zero waste initiatives.
	When design and creativity meet the planet and the environment	● Life cycle thinking: first approach to this way of thinking which is key when ecodesigning. ● Environmental sustainability and impacts: understanding the impacts that design decisions have on the environment. ● Ecodesign and ecodesign strategies: theoretically understanding of the ecodesign concept and its strategies that help reduce the environmental impact of design decisions	● Critical thinking and problem solving: identifying critical aspects within the life cycle of a product, a service or a system in terms of environmental impacts generation. Proposing strategies to improve such environmental performance. ● Research and creativity: great alternative ways of doing and solve problems will come from the combination of these skills ● Team work and communication: working in a team generating debate to finally find the best solution is as important and communicating the advantages of the proposed solution.	● Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups.

	From Fast to Last: Reinventing Fashion for the Future	● Advanced understanding of the concepts and principles of fast and slow fashion. ● Practical knowledge of the fast and slow fashion business models. ● Deeper understanding of the environmental impact of the textile sector. ● Theoretical knowledge of potential measures and good practices to reduce the environmental impact in the textile industry.	● Research skills related to the ability to gather, analyse, systemize and make use of information from digital resources on the topics of slow and fast fashion. ● Practical skills in business planning and developing business plan Canvas for an entity. ● Communication skills acquired through the conduction of a series of interviews. ● Presentation skills acquired through pitching ideas in front of an audience. ● Practical skills in using digital tools such as Miro, PowerPoint, Prezi, Canva or similar to visualize and pitch ideas. ● Ability to work in a team. ● Critical thinking and assessment skills through the evaluation of others' ideas.	● Independently analyse a company's business model; identify fast fashion characteristics. ● Independently develops actions and measures to redesign a fast fashion business model into a slow fashion one.
	Green Growth: Exploring Bioeconomy and Organic Resources	● Comprehensive understanding of bioeconomy principles and practices, including the role of renewable biological resources. ● Advanced knowledge of the role of organic resources in sustainable development. ● Critical understanding of theories and principles related to bioeconomy and resource management.	● Ability to analyse and develop strategies for integrating organic resources into the bioeconomy. ● Competence in evaluating the economic and environmental benefits of bio-based products and processes. ● Proficiency in using tools and methods for assessing the sustainability of bioeconomy initiatives.	● Capability to manage complex projects related to bioeconomy and sustainability, making strategic decisions. ● Responsibility for promoting and implementing sustainable bio-based practices within organizations and communities. ● Commitment to continuous professional development and the education of team members in bioeconomy sustainability.

Once you have decided which WebQuest(s) you will use, you should review it carefully, paying particular attention to:

- the main problem/question that learners will have to address or solve by completing it;
- the online resources that they will need to go through and think of additional sources (optional) that might be relevant to the subject/issue at focus that you may guide the learners through;
- the expected learning outcomes of the WebQuest and the evaluation
- a guiding scenario for the chosen WebQuest(s) which would facilitate the fulfilment of the learning objectives (learning outcomes);

Furthermore, it should not be forgotten that a WebQuest is a computer-based teaching tool and that, therefore, there is a whole series of requirements, both technical and individual (i.e. digital competence of the teacher and the students) that must be guaranteed:

(1) Solving a WebQuest requires continuous queries in search engines. In this respect, it is important to ensure that the classroom where the work is carried out has a stable internet connection. It should also be ensured that students can access computers/laptops provided by the institution itself or, alternatively, that the students themselves have their own device (laptops, tablets, smartphones).
(2) Similarly, if working with a WebQuest involves the use of any other applications (e.g. PowerPoint, Canva, Miro, etc.), as a teacher you should ensure that students have them or will have no problem accessing them.

Finally, beyond digital tools, it can be interesting to have a variety of materials that promote different types of presentations (e.g. flipcharts, Lego, plasticine, post-its, different colours of markers, bluetag, etc.).

4. SustainEDX Learning Topics

The SustainEdM, aimed at Higher Education teachers willing to approach the study and analysis of sustainability from an active teaching approach with an intensive use of digital tools, provides the teaching design needed for effective developing a course based on it.

As has already been explained, each one of the four topics is developed from several WebQuests. Although all the WebQuests are available from our website, in the following pages we share a detailed description of each WebQuest including its relation to the Sustainable Learning Experience as well as its relation to other topics.

4.1. Topic 1: Sustainability & ESG

What is it?

Sustainability is a concept that seeks to meet human, economic and environmental needs without compromising the ability of future generations to meet their own needs. It focuses on balancing environmental, social and economic factors. The key questions of sustainability are all about how to shape human activities so that they do not harm nature and society in the long term, while remaining economically viable. The key to sustainability is cooperation, responsible decision-making and innovation at all levels.

Countries around the world are addressing sustainability challenges through a series of global agreements and guidelines:

- UN Sustainable Development Goals (SDGs, 2030 Agenda): 17 goals covering a range of sustainability areas from poverty reduction to climate protection. It aims to increase social equity, protect environmental resources and ensure economic sustainability
- Paris Climate Agreement, 2015.: Aims to keep global warming below 1.5-2°C compared to pre-industrial levels. Countries make commitments to reducing carbon emissions.
- European Green Deal (EU Green Deal): Aims to make the EU carbon neutral by 2050. Measures: green energy, sustainable industry, circular economy, biodiversity protection.
- Agreement, (2022) Biodiversity Convention (CBD, Kunming-Montreal): Aims to protect biodiversity and halt habitat loss.

Sustainability has become a pressing global concern in recent years. As our planet faces many environmental, social, and economic challenges, it is crucial to address these sustainability issues to secure a better future for ourselves and future generations. All of us must seek to achieve sustainability, either as a private person or as a business/organization. The term ‘sustainability’ can be heard or can be read every day, it is somehow inextricably linked to all the fields of our lives, but still there are many who do not really know how to take an active part in achieving the goals in

sustainability. Many people still consider others' behaviour weird when they carefully think about what to buy, where to buy, how to buy, how to travel, how much water they use, what is their carbon footprint etc. Sometimes in business life, companies and organizations take sustainability as a good marketing communication tool to advertise their own activities that are - to a small or large extent - linked to any field of sustainability. Even if these measures are taken because they seem to do good for the company's fame, they are the first step to achieve global sustainability in case they are implemented and realized in business strategies and become the norm in everyday operations. In a more advanced stage, businesses and organizations must prove that they really do something to the environment and society that are measurable and have impact on the whole supply chain – that is called ESG framework.

ESG (Environmental, Social, Governance) encompasses the environmental, social and governance aspects that measure an organization's sustainability performance. Environmental, social and governance (ESG) are used to describe non-financial criteria, factors or standards relevant to businesses. They are increasingly considered in investment decisions and reporting by companies, but also relevant to wider stakeholders and consumers. The Corporate Sustainability Reporting Directive (CSRD) is a new ESG reporting framework which has been brought into effect by the European Commission**.** The aim of CSRD is to enable investors and stakeholders to better evaluate risks and investment impacts pertaining to sustainability. Even though such a consistent and uniform reporting framework is inevitable, it may pose extra work and costs on the businesses that may make them less motivated. According to the CSRD, in the first phase large companies must collect data and prepare reports on ESG but step-by step all businesses must comply with the directive. After a few years, small and medium-sized enterprises (SMEs) must also put it into their practice, though we know that their size, access to resources and knowledge may pose a big burden on them.

Why is it important?

Addressing sustainability and learning about sustainability is crucial for present and future generations, as humanity is using up natural resources at a rate that is unsustainable in the long term. If we do not take steps towards sustainable development, we will face serious environmental, social and economic consequences. Let us collect the most important reasons for dealing with sustainability issues.

1. Environmental reasons

Fight against climate change

- Greenhouse gas emissions cause global warming, leading to extreme weather events (heat waves, floods, droughts).
- If emissions are not reduced, sea-level rise and habitat destruction could force millions of people to leave their homes.

Conserving natural resources

- Fossil fuels, drinking water and arable land are not infinite resources; if we do not use them sustainably, they could run out.
- Sustainable water management and energy use will ensure the quality of life for future generations.

Protecting biodiversity and ecosystems

- Habitat destruction, deforestation and pollution cause thousands of species to disappear every year.
- Maintaining ecosystems is vital because they provide essential ecosystem services for humanity (e.g. clean air, fertile soil, food).

2. Social reasons

Improving health and quality of life

- Air pollution causes the premature deaths of millions of people every year. Clean air and water are essential for a healthy life.
- A healthy diet, sustainable agriculture and green transport can improve quality of life.

Equal opportunities and social justice

- Sustainability promotes equal access to resources such as drinking water, energy and education.
- Climate change will hit the poorest countries hardest, so sustainable development can help reduce social inequalities.

Sustainable cities and communities

- Rapid urbanization is putting increasing pressure on urban infrastructure, transport and energy supply.
- Green cities, energy-efficient buildings and sustainable transport systems improve quality of life.

3. Economic reasons

Sustainable economic growth

- Long-term dependence on fossil fuels can lead to economic insecurity. A green economy creates new jobs and stimulates innovation.

- A circular economy (recycling, resource efficiency) reduces costs and creates new business opportunities.

Corporate responsibility and competitive advantage

- Companies with ESG (environmental, social and governance) considerations can gain a competitive advantage with investors and consumers.
- Sustainable business models contribute to long-term stability and profitability.

Reducing financial risks

- Risks from climate change (e.g. extreme weather, natural disasters) can cause huge economic losses.
- Sustainable investments reduce long-term risks and lead to a more stable financial system.

4. Protecting future generations

Current overconsumption and pollution threaten the long-term sustainability of human civilization.

If no action is taken now, future generations will have fewer resources and face more serious environmental problems.

The WebQuests for Sustainability & ESG

Description of the main characteristics (learning outcomes, aims, skills, contents) of the WebQuests included in this topic and the relationship between them.

WebQuest 1: Be socially responsible thus sustainable

Description:	Workload:
The best way to learn is learning from businesses themselves. Your task will be to get familiar with the social aspects and dimension of ESG that focus on how companies manage relationships with employees, suppliers, customers, and communities. After getting deeper knowledge about the concept, the theoretical aspects as well as concrete examples from businesses, your task will be to select a company and analyse its ESG activities focusing on the social aspects. Based on the findings, you need to prepare a report including your proposals for improvement. As the last step, share your	8-12 hours

thoughts with the company representatives to discuss whether your suggestions can be feasible.		
Objectives: 1. Understand social responsibility in business: Gain insight into the concept of social responsibility, exploring methods and strategies businesses use to operate ethically and sustainably, while positively influencing internal processes and external communities. 2. Analyse and develop CSR strategies: Learn to independently analyse business CSR activities and reports, identifying best practices and developing strategies that promote human rights, diversity, inclusion, and worker wellbeing. 3. Promote diversity and ethical practices: Understand the importance of diversity and inclusion in the workplace and supply chains, and identify actionable methods businesses can adopt to foster ethical and socially responsible operations.		
Learning Outcomes		
Knowledge	Skills	Responsibility & Autonomy
Advance understanding of what it means for a business to be socially responsible, what ways can lead to socially responsible operation Gain deep knowledge why social responsibility is important for businesses and how it influences various processes and activities within and outside the business. Learning about CSR methods and strategies.	Able to investigate how companies can respect and promote human rights within their operations and supply chains. Understand the importance of diversity and inclusion in the workplace, and be able to identify best practices.	Independently analyze the social reports, CSR activities of businesses. Independently develop and implement strategies related to the wellbeing of workers, appropriate working conditions as well as strategies influencing the social environment of the business.

Main activities/tasks:

This activity focuses on exploring the social dimension of ESG (Environmental, Social, and Governance) by analysing how businesses manage relationships with employees, suppliers, customers, and communities. Participants follow a structured process in teams to gain theoretical and practical insights into ESG practices.

1. Team Formation: Participants form teams of three to collaborate effectively on the diverse aspects of ESG's social dimension. Teamwork allows members to divide tasks and explore various perspectives comprehensively.

2. Understanding ESG and CSR: Teams begin by researching ESG principles, particularly the social (S) dimension, and its connection to corporate social responsibility (CSR). This includes learning how social development contributes to a company's green transformation and enhances worker satisfaction, internal relationships, and operational efficiency. Participants investigate strategies impacting both the internal (e.g., labor policies) and external (e.g., CSR activities) environments, using a mix of recommended and self-selected resources.

3. Exploring Sustainable Social Strategies: Teams delve into how companies incorporate social considerations into their ESG strategies. Key areas of research include fair wages, safe working conditions, employee rights, ethical supply chains, diversity, inclusion, and community engagement. Participants identify examples of good practices and collect six case studies (three national and three international) showcasing successful CSR strategies, such as ethical labour practices or initiatives addressing discrimination.

4. Living Lab Activity: Practical Research: This phase bridges theory and practice through real-world analysis:

- Company Selection: Teams choose a company to analyse and conduct pre-research using online resources.
- Preparation: Teams draft interview questions and identify key topics and stakeholders within the company for deeper insights.
- Research: They perform primary research through interviews and secondary research via document and report analysis to understand the company's ESG social practices.
- Evaluation: Teams consolidate findings, discuss impressions, and address any unanswered questions through follow-ups with the company.
- Report Preparation: Based on the findings, teams create an executive summary (4-5 pages) highlighting the company's social practices within ESG. The report includes visual elements like graphs, figures, and mind maps to outline key components. Additionally, teams identify 2-3 critical areas requiring urgent action and propose approximately five recommendations for improvement.

5. Presentation and Discussion: Teams organize a meeting with company representatives to present their research findings:

- Presentation: A professional PowerPoint or other multimedia presentation is created to summarize the research process, findings, and recommendations visually.
- Engagement: All team members participate in the presentation and Q&A session, addressing questions or comments from the audience.
- Feedback: The executive summary is distributed to the lecturer and company representatives for review and feedback.

This structured approach enables participants to gain in-depth knowledge of ESG's social dimension while developing skills in research, teamwork, analysis, and professional communication. By combining theoretical exploration with real-world application, the activity fosters a practical understanding of sustainability practices and their improvement.

Key resources: ESG strategy; Corporate social responsibility (CRS); Sustainable Business Network and Consultancy (SBN)

Final remarks/hints for trainers:

- Facilitate Understanding of the Social Dimension of ESG: Provide an introductory session on ESG principles, emphasizing the importance of the social dimension in business practices. Highlight topics like fair labour practices, ethical supply chains, diversity, and community engagement to help students grasp their relevance to business success and societal impact.
- Encourage Team Collaboration: Stress the value of teamwork and role distribution within groups of three. Assign specific roles (e.g., researcher, analyst, presenter) to ensure every aspect of the task, such as research, analysis, and presentation, is covered efficiently.
- Offer Research Guidance: Share reliable resources on ESG principles and CSR strategies, such as case studies, reports, and examples of businesses excelling in social responsibility. Provide tips on finding information about national and international companies to identify best practices.
- Support Stakeholder Engagement: Guide students on how to approach and communicate with companies for interviews or additional information. Help them draft professional, focused interview questions to maximize insights from primary research.
- Promote Creativity in Reporting and Presentation: Encourage students to use visual aids like infographics, graphs, and mind maps to present findings. Recommend tools like Canva or PowerPoint to make their reports and presentations engaging and visually appealing.
- Emphasize the Value of Feedback: Organize sessions where students can present their findings to company representatives and receive constructive feedback. This helps refine their recommendations and enhances their professional communication skills.

By combining theoretical knowledge with real-world applications, educators can help students develop critical thinking, research, and collaborative skills while fostering an understanding of ESG's social dimension.

WebQuest 2: Champions of Climate and Biodiversity

Description: This WebQuest focuses on creating a sustainable development strategy addressing climate change and biodiversity loss, aligned with the United Nations Sustainable Development Goals (SDG 13 and SDG 15). Participants work in teams to explore the interconnectedness of these critical issues, analysing successful case studies and engaging with stakeholders such as environmental experts and local conservation groups. The goal is to develop a comprehensive proposal that outlines actionable strategies, implementation plans, and potential challenges. The task combines research on initiatives like energy transition, sustainable agriculture, and conservation practices with practical insights from real-world projects. Teams present their findings in a multimedia format, using visuals and data to convey the importance of climate action and biodiversity conservation. The final presentation is delivered to a panel of auditors, testing participants' ability to advocate for effective and sustainable solutions while fostering collaboration, critical thinking, and practical problem-solving skills.	Workload: 8-12 hours
Objectives: 1. Understand the Interconnection of Climate Action and Biodiversity Conservation: Gain a comprehensive understanding of the United Nations SDGs, their relevance to global sustainability efforts, and the interconnectedness of climate action and biodiversity conservation. 2. Evaluate Human Impact and Develop Solutions: Build the ability to assess the effects of human activity on biodiversity loss and climate change while identifying actionable strategies to address environmental challenges and promote sustainability.	

<table>
<tr><td colspan="2">3. Advocate for Environmental Responsibility: Develop skills to independently advocate for climate action and biodiversity conservation in personal and professional contexts, taking accountability for decisions that contribute to environmental preservation.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>A thorough knowledge of biodiversity conservation, climate action, and the Sustainable Development Goals (SDGs) of the United Nations.

Understanding how these issues are related to one another and how important they are to efforts to promote global.</td><td>The capacity to evaluate how human activity affects biodiversity loss and climate change.

Proficiency in recognizing plans of action and methods to solve environmental issues and advance sustainability.</td><td>Accepting responsibility for one's own choices and activities that support environmental preservation.

Speaking independently in both personal and professional contexts for climate action and biodiversity conservation.</td></tr>
<tr><td colspan="3">Main activities/tasks:

This WebQuest focuses on addressing climate change and biodiversity loss by developing a sustainable development strategy aligned with the United Nations Sustainable Development Goals (SDGs), particularly SDG 13 (Climate Action) and SDG 15 (Biodiversity Conservation). The activities combine research, stakeholder engagement, and collaborative teamwork to create actionable solutions, culminating in a professional presentation.

1. Team Formation: Participants form teams of 3-4 members to collaborate effectively on the project. Teamwork ensures diverse perspectives and shared responsibilities throughout the process.

2. Researching SDGs: Teams begin by exploring the objectives and targets of SDG 13 and SDG 15 to understand the importance of addressing climate action and biodiversity conservation. This provides the theoretical foundation for the project.

3. Analysing Case Studies: Participants examine two or three successful initiatives related to climate action and biodiversity conservation. For each case, teams analyse:

- The strategies used.
- The positive outcomes achieved.
- Challenges encountered and solutions implemented.
These examples provide insights into best practices and real-world applications.</td></tr>
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4. Living Lab Activity: Teams engage with stakeholders to gather practical knowledge and firsthand insights:

- Conduct interviews with local environmental experts, conservation groups, or teachers.
- Learn about their work, challenges, and recommendations for tackling environmental issues.

This activity bridges theoretical learning with real-world expertise, enriching the project with actionable ideas.

5. Developing a Comprehensive Proposal: Based on their research and stakeholder interactions, teams create a detailed proposal outlining specific actions and solutions to address climate change and biodiversity loss. The proposal includes:

- A description of proposed actions and how they address the issues.
- Implementation strategies with timelines.
- Anticipated challenges and strategies to overcome them.
- Insights gained from expert interactions and case studies.

6. Creating a Multimedia Presentation: Teams design a compelling presentation (e.g., PowerPoint or video) to summarize their proposal. Using Canva or similar tools, the presentation should:

- Highlight the importance of climate action and biodiversity conservation.
- Incorporate visuals and data for clarity and persuasion.
- Showcase insights from stakeholder interactions and case studies.

7. Presenting the Proposal: Teams present their proposals to the class or a panel of environmental auditors. The presentation serves as a platform to explain their ideas, answer questions, and engage in meaningful discussions.

By completing this WebQuest, participants:

- Deepen their understanding of SDG 13 and SDG 15.
- Develop research, critical thinking, and teamwork skills.
- Gain practical experience in creating actionable sustainability strategies.
- Enhance their ability to communicate and advocate for environmental solutions effectively.

This process encourages participants to think innovatively and collaboratively, equipping them to contribute to a sustainable future.

Key resources: the United Nations Sustainable Development Goals; SDG 13; SDG 15, IPCC

Final remarks/hints for trainers:

- Facilitate Team Collaboration: Encourage students to form diverse teams of 3-4 members and emphasize the value of collaboration. Assign roles within the team (e.g., researcher, designer, presenter) to ensure efficient task distribution and foster accountability.

- Provide Context and Resources: Start with a clear explanation of the United Nations Sustainable Development Goals (SDG 13 and SDG 15). Share reliable resources such as case studies, online platforms, and expert interviews to help students understand the importance of climate action and biodiversity conservation.
- Incorporate Real-World Insights: Guide students in connecting theoretical knowledge with practical applications. Encourage them to engage with local environmental organizations or professionals for firsthand insights and to strengthen their proposals with real-world relevance.
- Promote Creativity in Proposals: Support students in designing visually appealing and persuasive presentations using tools like Canva or PowerPoint. Encourage the use of visuals, data, and real-life examples to effectively communicate their ideas.
- Focus on Soft Skills Development: Emphasize the importance of soft skills, such as public speaking and teamwork. Provide feedback on verbal and non-verbal communication during presentations to help students build confidence and refine their delivery.
- Encourage Reflection: After the presentations, prompt students to reflect on their learning experience, considering how they can apply sustainability principles in their personal and professional lives. This step reinforces the relevance of WebQuest to their future endeavours.

WebQuest 3: ESG explorer: Navigating Sustainability for SMEs

Description:	Workload: 8-12 hours
This WebQuest focuses on sustainability and the role of Environmental, Social, and Governance (ESG) principles in business. It highlights the importance of sustainable practices and how small and medium-sized enterprises (SMEs) can integrate ESG into their strategies. The WebQuest aims to raise awareness among SME managers about sustainability's benefits and obligations under new regulations, such as the Corporate Sustainability Reporting Directive (CSRD). Students will work in teams to research sustainability and ESG principles, analyse real-life business cases, and develop an awareness campaign. The campaign will include materials like posters, webinars, and manuals to educate SMEs about sustainable business practices. Teams will design strategies, create informative content using digital tools, and plan communication methods. The final task involves presenting the campaign to a jury, consisting of lecturers and business professionals, to	

<table>
<tr><td colspan="2">receive feedback and refine their work. This WebQuest enhances students' research, teamwork, and communication skills while fostering a deeper understanding of sustainability in business.</td><td rowspan="2"></td></tr>
<tr><td colspan="2">Objectives:

1. Understand Sustainability and ESG Principles: Develop a comprehensive understanding of sustainability challenges and ESG principles, including their role in promoting long-term value creation and sustainable development for businesses and society.
2. Create Tailored Solutions for SMEs: Learn to design focused and practical strategies to help SMEs implement sustainable practices and comply with ESG reporting, considering their limited resources and unique operational needs.
3. Develop and Present an Awareness Campaign: Build skills to create and execute impactful awareness campaigns, including materials, events, and communication strategies, to raise SME leaders' awareness about the importance of sustainability and ESG practices.</td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Understand the principles and frameworks of sustainability.

Gain knowledge of key environmental, social, and governance (ESG) issues and their relevance to business operations as well as the most important legislation background of reporting.</td><td>Develop the ability to analyse sustainability reports and ESG disclosures.

Acquire skills in stakeholder engagement and communication regarding sustainability performance.</td><td>Demonstrate autonomy in researching and identifying relevant sustainability metrics and indicators for reporting purposes.

Exercise critical thinking in assessing the materiality of sustainability issues for organizations.</td></tr>
<tr><td colspan="3">Main activities/tasks:

This WebQuest focuses on creating an awareness campaign to promote sustainability and the implementation of ESG principles among SMEs (small and medium-sized enterprises). Participants work in teams to research, design, and present a</td></tr>
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comprehensive strategy aimed at helping SMEs adopt sustainable practices and comply with ESG reporting requirements. Below is a step-by-step outline of the main activities:

1. Team Formation: Participants form teams of 3-4 members to collaborate on the campaign. Teamwork ensures idea-sharing and efficiency in tackling the multidimensional aspects of the project.

2. Researching Sustainability and ESG Principles: Teams begin by familiarizing themselves with the fundamental challenges of sustainability and the core principles of the ESG framework. They explore why these principles are essential for businesses and how they contribute to long-term value creation.

3. Learning from Real-Life Examples: Participants analyse case studies or examples of companies with effective ESG practices to understand how sustainability is integrated into business operations and how such actions are reflected in ESG reporting.

4. Developing Key Tips for SMEs: Based on their research, teams compile a list of the top 10 activities and tips SMEs should follow to implement sustainable practices and prepare for ESG reporting.

5. Designing the Awareness Campaign: Teams research how to create effective awareness campaigns, identifying the target audience, appropriate channels (e.g., social media, influencers, or chambers of commerce), and the most suitable marketing tools.

- Campaign Strategy: Teams outline the activities, target audience, timeframe, and methods for engaging SMEs.
- Materials Creation: Participants design campaign materials such as brochures, posters, or short manuals using tools like Canva, ensuring the content is both informative and visually appealing.

6. Planning Events and Communication: Teams plan events or platforms to share their materials with SME leaders, detailing the communication strategy to promote their campaign effectively. This includes setting performance indicators (KPIs) to measure the campaign's success.

7. Presenting Campaigns in a Competition: As a final task, teams present their campaigns to the class and a jury of lecturers and business professionals. Presentations include campaign strategies, materials, and KPIs. Feedback is provided, and the best campaign is awarded.

Through this WebQuest, participants gain practical knowledge of sustainability, ESG principles, and campaign design. They develop research, teamwork, and creative skills while contributing to the promotion of sustainable business practices.

Key resources: Corporate Sustainability Reporting Directive (CSRD); small and medium-sized enterprises (SMEs); green environment

Final remarks/hints for trainers:

- Encourage Collaboration and Idea Sharing: Emphasize the importance of teamwork throughout the WebQuest by assigning groups of 3-4 students.

Facilitate discussions to ensure team members brainstorm and share diverse perspectives on sustainability and ESG practices.

- Provide Context and Resources: Offer introductory materials on sustainability challenges, the ESG framework, and the Corporate Sustainability Reporting Directive (CSRD). Highlight real-life case studies to help students understand practical examples of effective sustainability and reporting practices.
- Guide Research on SMEs: Direct students to explore the unique challenges SMEs face regarding sustainability and ESG compliance. Recommend tools like Canva for designing campaign materials and provide a list of reliable online sources to ensure their research is focused and productive.
- Support Campaign Development: Encourage students to define their target audience clearly and explore creative channels like social media, influencers, and professional organizations to deliver their message effectively. Review their plans to ensure campaigns are realistic and impactful.

WebQuest 4: Gender, Intersectional Justice, and Sustainability

Description:	Workload: 8-12 hours
This WebQuest explores the intersection of gender, justice, and sustainability, emphasizing the importance of integrating an intersectional gender perspective into sustainability efforts. It highlights how gender disparities impact environmental and social development and encourages students to critically analyse these issues. Students will work in teams to research real-world examples of gender inequality and sustainability challenges. They will conduct surveys, engage in debates, and explore case studies to understand how gender-inclusive policies can create a fairer and more sustainable world. Through brainstorming, discussions, and stakeholder role-playing, they will develop arguments on topics such as hegemonic knowledge, positive action, and gender-responsive policies. As a final step, students will present their findings and proposed solutions to an imagined panel of stakeholders. This process will equip them with the knowledge and skills to advocate for gender justice and sustainability in their communities, fostering positive social change.	
Objectives: 1. Understand the Intersection of Gender and Sustainability: Develop a comprehensive understanding of how gender perspectives	

<table>
<tr><td colspan="2">influence sustainability, justice, and social equity. Learn to analyse real-world cases where intersectional gender issues impact environmental and social policies.
2. Critically Assess Gender Equality and Justice: Build the ability to evaluate gender disparities in different contexts, such as access to resources and policy-making. Identify strategies to address gender-based discrimination and promote intersectional justice in sustainability initiatives.
3. Apply Theoretical Knowledge to Practical Solutions: Collaborate in teams to research, debate, and propose solutions for gender-related sustainability challenges. Develop a presentation for stakeholders that highlights key gender justice issues and actionable recommendations for a more equitable society.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Awareness of Gender Inequality: Understanding various manifestations of gender inequality globally and locally, such as the gender pay gap, representation in leadership, and access to education and healthcare.

Understanding Gender Roles and Stereotypes: Learning how societal norms and stereotypes shape expectations and opportunities for different genders.

Complexity of Identity: Gaining insights into how overlapping identities (race, class, gender, sexuality, ability) affect individuals' experiences of oppression and privilege.</td><td>Empowerment and Advocacy: Developing strategies for promoting gender equality through legal frameworks, grassroots campaigns, and global initiatives.

Holistic Approaches to Justice: Analysing policies and practices that consider multiple axes of identity to promote inclusive and effective solutions.

Critical Thinking and Problem-Solving: Enhancing abilities to analyse complex social issues and propose multifaceted solutions through case studies and real-world examples</td><td>Promotion of Sustainable Practices: Taking responsibility for promoting and practicing sustainability in personal and community contexts.

Engagement with Movements and Strategies: Actively participating in movements and employing strategies that aim to achieve gender equality and intersectional justice.</td></tr>
</table>

Environmental Justice: Understanding how environmental issues disproportionately affect marginalized communities.		

Main activities/tasks:

This WebQuest focuses on the intersection of gender, justice, and sustainability, emphasizing the importance of an intersectional gender perspective in achieving fair and sustainable development. The key objective is to critically assess gender-related challenges and their impact on environmental and social sustainability while proposing actionable solutions.

- Team Formation and Initial Research: Students begin by forming diverse teams of 3-4 members, ensuring a mix of perspectives and gender representation. They start by exploring the provided resources, including videos and articles, to understand how gender functions as a methodological tool in sustainability and justice frameworks.
- Brainstorming and Perception Survey (Living Lab Activity): The next step involves a structured brainstorming session where students reflect on how gender perspectives influence decision-making processes. They design a short perception survey to gather insights from peers or community members on gender as a transversal tool in sustainability.
- Argument Development and Debate: Students then engage in group discussions to define different perspectives on gender justice and sustainability. They debate key concepts such as hegemonic knowledge, formal vs. effective equality, and positive action to combat discrimination. Each team must take a stance and defend their assigned position using real-world examples.
- Synthesizing Key Findings: After discussions, students identify strategies to combat discrimination and evaluate feminist critiques of justice from an intersectional perspective. This stage requires them to process theoretical knowledge and translate it into practical recommendations.
- Exploring Real-World Applications: To connect theory with practice, students analyse best practices in gender equality, such as initiatives from the city of Barcelona. They then identify gender-related sustainability challenges within their local communities or universities and propose solutions in a collaborative discussion.
- Developing and Presenting Actionable Proposals: Students work together to create a presentation that outlines a real or imagined gender justice issue and presents a vision for change. This is addressed to a simulated panel of stakeholders, including government representatives, scientists, and community members. Their presentations should highlight challenges, propose solutions, and inspire action toward more inclusive and sustainable public spaces.
- Final Reflection and Learning Outcomes: By completing this WebQuest, students gain a comprehensive understanding of gender justice, intersectionality, and

sustainability. They develop critical thinking, debate, and research skills while learning to apply gender perspectives to real-world social and environmental issues. Through collaboration and reflection, they are encouraged to take active roles in fostering gender-inclusive sustainability initiatives in their own communities.
Key resources: Gender; Intersectional Justice; Sustainability
Final remarks/hints for trainers: - Facilitate Understanding of Gender as a Methodology: Begin with an introductory discussion to clarify how gender can serve as a critical tool for analysing sustainability and justice. Provide guidance on interpreting key concepts such as intersectionality, epistemic injustice, and feminist critiques of justice to ensure students grasp the foundational ideas. - Encourage Team Diversity and Collaboration: Guide students to form diverse teams with balanced gender representation. Encourage assigning roles based on individual strengths and interests, ensuring contributions from all team members while fostering collaboration and inclusion. - Promote Critical Thinking and Reflection: During brainstorming sessions, help students explore the advantages of applying gender as a transversal methodology. Use probing questions to encourage critical analysis of concepts like binary logic, embodied knowledge, and hegemonic perspectives in knowledge production. - Support Practical Application of Concepts: Provide real-world examples of gender-based sustainability practices, such as the initiatives in Barcelona. Encourage students to connect these practices to local contexts, such as their city or university, to make the concepts relatable and actionable. - Guide Stakeholder Simulations: Offer tips for creating engaging and realistic stakeholder presentations. Encourage students to provide both challenges and actionable solutions while emphasizing creativity in their vision for inclusive and just public spaces. - Foster Debate and Open Dialogue: Create a supportive environment for group discussions and debates. Encourage students to share differing perspectives and provide constructive feedback to refine their arguments and broaden their understanding. These tips will help educators facilitate meaningful learning experiences while empowering students to apply gender perspectives to sustainability challenges.

WebQuest 5: Powering the future: energy management and renewable energy sources

Description:	Workload: 8-12 hours

This WebQuest focuses on energy management and renewable energy sources (RES) as key elements of sustainability. Participants will form teams to assess the energy efficiency of a chosen facility, conduct an energy audit, and develop an action plan for improving energy use. They will explore RES such as solar, wind, hydro, and biomass, evaluating their feasibility and environmental impact. The project involves stakeholder engagement, research on sustainable energy strategies, and practical application of energy-saving measures like improved insulation, HVAC optimization, and LED lighting. Participants will quantify environmental and economic benefits using assessment tools such as carbon footprint calculators. The final output includes a detailed report, an energy action plan, and a multimedia presentation showcasing findings and recommendations. This WebQuest equips learners with hands-on experience in sustainable energy solutions, fostering innovation and responsibility in tackling climate change. Through teamwork and research, participants gain valuable skills to contribute to a greener, more sustainable future.	
Objectives: 1. Develop a Comprehensive Understanding of Energy Management: Participants will gain in-depth knowledge of energy management principles, including energy auditing, efficiency optimization, and sustainable practices. They will learn how to analyse energy consumption, identify inefficiencies, and propose effective solutions for energy conservation. 2. Explore and Implement Renewable Energy Solutions: Students will research various renewable energy sources (solar, wind, hydro, biomass) and evaluate their feasibility for integration into a real-world facility. They will develop strategies to reduce reliance on fossil fuels, lower carbon emissions, and enhance sustainability. 3. Enhance Critical Thinking and Problem-Solving Skills: Through collaborative research and real-world assessments, students will apply analytical skills to create a detailed energy action plan. They	

<table>
<tr><td colspan="2">will also evaluate the economic and environmental impact of proposed solutions and present their findings in a professional multimedia format.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>In-depth understanding of energy management principles and practices, including energy action planning, performance metrics, and so forth.

Advanced knowledge of renewable energy sources (RES) and their integration, including technological aspects and feasibility of solar, wind, hydro, and biomass energy.

Critical understanding of energy efficiency and sustainability theories, including sustainable development principles.</td><td>Analytical skills related to analysing and identifying areas for improvement and developing energy-saving measures.

Competence in conducting feasibility studies and comparing the performance of different RES.

Proficiency in using assessment tools and methods, such as carbon footprint calculators.</td><td>Capability to make informed decisions related to energy efficiency improvement.

Responsibility for promoting and implementing sustainable energy practices within organisations and communities.

Commitment to continuous professional development and the education of team members in energy sustainability.</td></tr>
<tr><td colspan="3">Main activities/tasks:

This WebQuest is designed to help students explore energy management principles and renewable energy sources (RES) by working on a practical project. Participants will work in teams to assess energy use in a real facility, propose efficiency measures, and integrate renewable energy solutions to create a sustainable energy action plan.

- Group Formation and Facility Selection: Students will form teams of 3-4 members, each taking on specific roles. They will choose a real facility (e.g., school, office, or home) to analyse its energy consumption, heating, cooling, and water systems. This hands-on approach allows students to apply theoretical knowledge in a practical setting.
- Initial Research and Energy Assessment: Teams will research energy management principles and renewable energy sources (solar, wind, hydro, biomass). They will gather data on current energy use, identify inefficiencies, and assess HVAC (Heating, Ventilation, and Air Conditioning) systems. To gain insights, teams will engage with stakeholders, facility managers, and energy experts through interviews or surveys.</td></tr>
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- Developing an Energy Action Plan: Based on the assessment, each team will design a plan to improve energy efficiency. Key strategies include:

  Energy efficiency measures:

  - Upgrading to LED lighting
  - Enhancing insulation
  - Optimizing heating and cooling systems
  - Implementing energy-saving technologies

  Renewable energy integration:

  - Solar panels for renewable energy production
  - Wind turbines (if feasible)
  - Hydroelectric or biomass solutions

  The plan should include financial estimates, required materials, expected implementation timeline, and potential energy savings. Online tools like carbon footprint calculators and cost-benefit analysis tools will be used for calculations.

- Evaluating Environmental and Economic Impacts: Teams will assess the environmental benefits and cost-effectiveness of their proposed solutions, including:
  - Reduction in carbon emissions
  - Energy savings and operational cost reductions
  - Long-term sustainability and financial feasibility
- Compiling Findings into a Report: The report will include:
  - Overview of current energy use and inefficiencies
  - Detailed energy action plan with proposed solutions
  - Rationale for integrating renewable energy sources
  - Assessment of environmental and economic impacts
  - Supporting data, charts, and documentation
- Creating a Multimedia Presentation: Each team will create a visual presentation summarizing their project using charts, graphs, and videos. The presentation should clearly explain:
  - Findings from the energy assessment
  - Key components of the energy action plan
  - Proposed renewable energy solutions
  - Environmental and economic impacts
- Final Presentation and Peer Review: Teams will present their findings to the class, followed by a discussion and Q&A session. The class will vote on the most energy-efficient project, encouraging critical thinking and peer feedback.

Through this WebQuest, students gain practical experience in energy management and sustainability. They develop skills in data analysis, teamwork, stakeholder engagement, and public speaking, preparing them to contribute to real-world energy efficiency projects. Each small step towards energy sustainability contributes to a greener and more resilient future for all.

Key resources: Renewable Energy sources (RES); Energy Efficiency; Energy management
Final remarks/hints for trainers: 1. Encourage Hands-on Learning: - Guide students to select real buildings or facilities for energy assessments to ensure practical application. - Facilitate discussions with facility managers or energy experts to provide real-world insights. 2. Promote Collaborative and Critical Thinking: - Assign specific roles within teams to ensure efficient workload distribution (e.g., data analyst, researcher, project coordinator). - Encourage debates on different renewable energy sources, weighing environmental benefits against economic feasibility. 3. Utilize Digital Tools for Analysis and Presentation - Recommend online tools for energy calculations (e.g., carbon footprint calculators, cost-benefit analysis software). - Support students in creating compelling presentations using multimedia tools like Canva, PowerPoint, or Prezi. 4. Integrate Stakeholder Engagement - Suggest students conduct surveys or interviews with stakeholders to understand challenges in energy efficiency. - Facilitate virtual or in-person expert talks to enhance knowledge on energy policies and sustainable solutions. 5. Encourage Reflection and Innovation - Conclude the project with a discussion on how students can implement energy-saving measures in their daily lives. - Have teams propose innovative energy solutions that could be applied to their community.

WebQuest 6: What is Degrowth, and why do we need it?

Description:	Workload: 8-12 hours
This WebQuest explores Degrowth, a movement that critiques economic growth as a measure of prosperity and advocates for sustainable alternatives. Students begin by watching a video essay that introduces key Degrowth concepts, including the environmental and social consequences of endless growth, the flaws of green growth, and the need for a systemic transition. After each section, they discuss critical questions in pairs. Next, students form research groups to explore specific Degrowth topics: - Debunking Green Growth	

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- Degrowth Non-Reformist Reforms
- Degrowth and the Global South
- Degrowth and Feminisms

Each group researches its topic using provided resources and prepares a 15-minute presentation for their peers. The WebQuest concludes with group discussions and reflections on key takeaways.

This participatory approach fosters critical thinking, collaboration, and deeper engagement with sustainable economic alternatives, equipping students with the tools to explore and advocate for a more just and ecological future.

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Objectives:

1. Critically assess the consequences of economic growth: Understand how unlimited economic growth contributes to environmental collapse, social inequality, and economic instability. Explore why traditional growth metrics, such as GDP, fail to reflect well-being and sustainability.
2. Examine alternative economic and social models: Investigate the principles of Degrowth and its interdisciplinary foundations, including ecological economics and political ecology. Analyse how Degrowth proposes sustainable and equitable alternatives to profit-driven economies.
3. Develop research and presentation skills: Collaborate in teams to explore key Degrowth topics, such as green growth critiques, feminist perspectives, and global inequalities. Synthesize findings into engaging presentations, fostering peer-to-peer learning and critical discussions.

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<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>

Define Degrowth and explain the fundamental concepts informing it.

Illustrate the main critiques to economic growth

Explain what the dominant paradigm of “green growth” is and why it is highly unlikely

</td><td>

Think critically about the growth-driven economic system and articulate science-informed critiques

Analyse complex socio-ecological challenges from a critical perspective

</td><td>

Independently gather and research academic information

Work in teams on new topics, divide tasks equally, collaborate with peers

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Identify and explain possible alternatives for socio-ecologically just futures	Engage with real-world alternatives and their potential to bring about socio-ecological transformations.	Effectively present and communicate newly acquired Degrowth concepts to peers and lay persons Develop a personal interest to further explore the topic

Main activities/tasks:

This WebQuest introduces students to the concept of Degrowth, a movement that critiques the relentless pursuit of economic growth and advocates for a more sustainable and equitable society. Participants engage in a structured learning process that combines multimedia resources, peer discussions, and group presentations to explore the challenges of economic growth and alternative pathways toward a sustainable future.

WebQuest begins with an introductory video that covers key Degrowth concepts, including why economic growth is problematic, the limitations of green growth, and alternative strategies for sustainability. After watching different sections of the video, students engage in guided discussions with peers, addressing critical questions such as the impact of growth on the environment and social inequalities. They also explore additional resources, including academic articles, infographics, and reports, to deepen their understanding.

Next, students divide into research groups, each focusing on a specific Degrowth-related topic:

- Debunking Green Growth – Examining why economic decoupling is unlikely and why technological solutions alone are insufficient.
- Degrowth Non-Reformist Reforms – Investigating policies that support systemic change rather than incremental adjustments.
- Degrowth and the Global South – Understanding the role of Degrowth in addressing global inequalities and ecological challenges.
- Degrowth and Feminisms – Exploring feminist perspectives on sustainability, care work, and alternative economies.
- Degrowth Nowtopias – Studying real-world experiments and grassroots initiatives that embody Degrowth principles.

Each group conducts independent research using provided sources and external materials, compiling their findings into a 15-minute presentation. The objective is to teach their peers about the chosen topic in an engaging and accessible way. Teams are encouraged to use visual aids, simple language, and interactive elements to ensure their message is clear and memorable.

Once the presentations are prepared, students participate in a showcase session, where each group presents its findings to the class. After each presentation, a short discussion

follows, allowing students to ask questions, clarify concepts, and reflect on key takeaways. This peer-to-peer learning approach enhances comprehension and retention while fostering critical thinking and collaboration.

The WebQuest concludes with a final reflection session, where students share their insights, challenges, and newly acquired perspectives. They are encouraged to explore Degrowth further by engaging with local sustainability projects, such as community gardens, social movements, or academic research.

Overall, this WebQuest provides an immersive and participatory learning experience, equipping students with the knowledge and tools to critically analyse economic growth, challenge mainstream sustainability narratives, and explore alternative models for a just and ecological future.

Key resources: Growth-driven economic system; Green Growth; Degrowth Non-Reformist Reforms

Final remarks/hints for trainers:

1. Encourage Critical Thinking:
    - Guide students to question mainstream economic assumptions, such as the necessity of continuous growth for societal well-being.
    - Challenge them to reflect on the winners and losers of economic growth and consider alternative measures of prosperity.
2. Facilitate Engaging Discussions:
    - After each video segment, encourage in-depth discussions by prompting students to articulate their viewpoints.
    - Ensure an inclusive environment where diverse perspectives can be shared and debated.
3. Support Research and Collaboration:
    - Assist students in navigating academic resources and distinguishing credible sources.
    - Encourage teams to distribute tasks effectively to ensure equitable participation in research and presentations.
4. Promote Peer-to-Peer Learning:
    - Remind students that their presentations should be accessible and engaging, using clear explanations and visual aids.
    - Encourage them to focus on key takeaways rather than overwhelming their peers with excessive information.
5. Connect Theory to Real-World Applications:
    - Encourage students to explore community projects, such as local sustainability initiatives, to see Degrowth in action.
    - Discuss practical implications, such as policy changes or lifestyle shifts, that could contribute to sustainable alternatives.

By fostering critical engagement and collaboration, this WebQuest can empower students to think beyond conventional economic paradigms and explore transformative sustainability solutions.

WebQuest 7: Building Trust: Stakeholder Engagement and Transparency in Sustainability Reporting

<table>
<tr><td>Description:

This WebQuest focuses on stakeholder engagement and transparency in sustainability reporting. Participants explore how companies communicate their sustainability strategies and build trust through clear, transparent, and accountable reporting.

Students analyse sustainability reports from three different companies, evaluating their compliance with GRI and SASB standards. They assess clarity, completeness, and stakeholder engagement while identifying key areas for improvement. The process includes researching sustainability reporting principles, understanding key ESG issues, and recognizing different stakeholder groups.

To gain practical insights, students interview sustainability managers to understand how companies engage stakeholders and maintain transparency. Using a self-developed rubric, they systematically evaluate reports and propose specific recommendations to enhance reporting practices.

WebQuest develops critical thinking, research, and communication skills, preparing students for future roles in sustainability, ESG reporting, and corporate responsibility. By the end, participants understand the importance of transparent sustainability communication and how it fosters trust and accountability in the business world.</td><td rowspan="2">Workload: 8-12 hours</td></tr>
<tr><td>Objectives:

1. Understand Sustainability Reporting Principles: Learn the key concepts of sustainability reporting, including the role of transparency and stakeholder engagement in corporate accountability. Explore the GRI and SASB frameworks to assess how companies disclose sustainability-related information.
2. Develop Critical Analysis and Evaluation Skills: Conduct a comparative analysis of sustainability reports from different industries, assessing their clarity, completeness, and stakeholder</td></tr>
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<table>
<tr><td colspan="2">engagement. Use a structured rubric to evaluate companies' adherence to recognized reporting standards.
3. Enhance Stakeholder Communication and Reporting Practices: Identify key stakeholder groups and understand their influence on sustainability reporting. Propose practical recommendations to improve transparency and stakeholder engagement, ensuring businesses build trust with their communities</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Principles and frameworks of sustainability reporting, such as GRI and SASB standards.

Key environmental, social, and governance (ESG) issues and their impact on business operations.</td><td>Ability to analyse sustainability reports and ESG disclosures, assessing their credibility and completeness.

Engaging with stakeholders and effectively communicating sustainability performance.

Critical thinking skills to evaluate the materiality of sustainability issues for various organizations.</td><td>Demonstrate autonomy in researching and identifying relevant sustainability metrics and indicators for reporting purposes.

Show autonomy and responsibility in formulating recommendations for improving sustainability reporting and stakeholder engagement practices.</td></tr>
<tr><td colspan="3">Main activities/tasks:

This WebQuest focuses on stakeholder engagement and transparency in sustainability reporting. Participants explore how companies communicate their sustainability strategies, engage with stakeholders, and comply with recognized reporting frameworks, particularly the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB). The main objective is to analyse corporate sustainability reports, assess their transparency, and propose improvements to enhance credibility and trust.

- Understanding Sustainability Reporting Principles: Participants begin by researching the fundamental concepts of sustainability reporting, including Environmental, Social, and Governance (ESG) factors and their role in corporate responsibility. They explore the importance of transparency and stakeholder engagement in building trust between businesses and society.</td></tr>
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- Familiarizing with Reporting Standards (GRI & SASB): Students examine the GRI and SASB frameworks, which set guidelines for corporate sustainability reporting. They learn about the requirements, objectives, and differences between these standards to understand how companies disclose sustainability information.
- Identifying Key Stakeholders: Participants study various stakeholder groups, such as investors, employees, customers, and local communities, to assess how they influence sustainability reporting. They analyse how businesses address stakeholder concerns and integrate them into their reports.
- Selecting and Analysing Company Reports: Each group selects three companies from different industries and collects their latest sustainability reports from corporate websites. Participants review these reports, ensuring they cover key sections such as environmental impact, social responsibility, governance policies, and stakeholder engagement strategies.
- Conducting Interviews with Sustainability Managers: To gain real-world insights, students contact sustainability managers or corporate representatives to discuss their approach to transparency and stakeholder engagement. If direct interviews are not possible, they use alternative sources such as corporate reports, case studies, or sustainability conferences.
- Evaluating Reports Using Standardized Rubric: Groups develop an assessment rubric based on factors such as clarity, comprehensiveness, stakeholder engagement, and alignment with GRI and SASB. Using this rubric, they score and compare the sustainability reports to identify strengths and weaknesses.
- Proposing Improvements: Based on their evaluations, students formulate recommendations for each company to improve its sustainability reporting. Suggested improvements focus on enhancing clarity, transparency, stakeholder engagement, and compliance with reporting standards.
- Final Presentation and Reflection: Participants present their findings in a structured format, showcasing their report assessments and proposed improvements. A final discussion encourages students to reflect on the importance of sustainability reporting and how businesses can build greater accountability.

By completing this WebQuest, participants gain a comprehensive understanding of sustainability reporting, stakeholder engagement, and corporate transparency. They develop critical analysis, research, and communication skills, preparing them for future careers in sustainability, corporate governance, or ESG consulting. This WebQuest reinforces the importance of transparent and ethical business practices, empowering students to advocate for responsible corporate sustainability efforts.

Key resources: GRI; SASB standards; sustainability report

Final remarks/hints for trainers:

- Provide Context and Relevance: Begin by explaining why transparency and stakeholder engagement are critical in today's business environment. Use real-

world examples of companies excelling or failing in sustainability reporting to highlight its impact on corporate reputation and trust.

- Guide Students Through Standards (GRI & SASB): Encourage students to compare the two frameworks and discuss their similarities and differences. Assign small case studies or examples to help students understand how companies apply these standards in practice.
- Facilitate Critical Analysis: Emphasize the importance of objectivity when analysing sustainability reports. Encourage students to identify both strengths and gaps in corporate reporting rather than just focusing on shortcomings.
- Support Stakeholder Engagement Activities: If direct interviews with sustainability managers are not feasible, suggest alternative sources such as corporate reports, industry case studies, or recorded interviews from sustainability professionals. Provide guidance on formulating effective interview questions that encourage meaningful discussions.
- Encourage Practical Application: Have students present their findings in a simulated corporate setting where they advise companies on improving their sustainability reporting. Foster teamwork by assigning diverse roles (e.g., researchers, analysts, presenters) to enhance collaboration and critical thinking.

By implementing these strategies, educators can ensure a deeper, more engaging learning experience, equipping students with valuable ESG and corporate sustainability assessment skills.

Relation to the Sustainable Learning Experience & Relation to other topics

These WebQuests promote sustainable learning experiences by integrating theoretical knowledge with practical application. They emphasize active participation, critical thinking, and real-world problem solving, which are essential for understanding and effectively implementing sustainability principles.

Participants engage in a research-driven process where they explore sustainability reporting frameworks (GRI and SASB), assess corporate transparency, and evaluate stakeholder engagement. This hands-on approach encourages students to analyse real-world sustainability reports, interview industry experts, and propose tangible improvements. In doing so, students develop analytical and communication skills that are key to advancing sustainability in their future careers.

The WebQuests incorporate interdisciplinary learning, integrating business ethics, environmental management, and corporate responsibility. Through teamwork and structured assessment, students gain a deeper understanding of ESG principles, preparing them for decision-making roles in sustainable business practices.

With an emphasis on collaboration, ethical responsibility, and stakeholder inclusion, this learning experience equips students with the skills and mindset needed to create a more transparent and sustainable corporate environment.

Sustainability and ESG (environmental, social and governance factors) are interlinked with several other topics, as they represent a comprehensive approach to addressing economic, social and environmental challenges. The main links with other areas are outlined below:

1. Economy and finance: responsible investment, Green finance, Circular economy.

2. Environment and climate change: greenhouse gas reduction, Renewable energy, Biodiversity and nature conservation

3. Workers' rights and welfare: diversity and inclusion, Corporate social responsibility.

4. Technology and innovation: sustainable technologies, Digitalisation, Green innovation.

5. Policy and regulation: UN SDGs, International conventions, Sustainability reporting, Taxation and incentives.

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4.2. Topic 2: Sustainable supply chain management

What is it?

Sustainable supply chain management (SSCM) integrates environmental, social, and economic considerations into traditional supply chain management practices. SSCM emphasises ethical sourcing, minimising environmental impact, and promoting social responsibility throughout the entire lifecycle of goods and services.

It is not limited to corporate social responsibility (CSR) initiatives or isolated environmental actions. Instead, SSCM focuses on embedding sustainability into core supply chain activities, such as procurement, manufacturing, logistics, and distribution. This involves reducing carbon emissions, ensuring fair labour

practices, optimising resource usage, and fostering supplier partnerships that align with sustainability goals.

SSCM also considers the downstream and upstream impacts of supply chains, recognising the interconnected nature of global trade. For example, ethical sourcing ensures fair compensation for workers in developing countries, while sustainable logistics reduces the environmental footprint of transportation.

SSCM does not support practices that prioritise profits at the expense of environmental health or social equity.

Why is it important?

Sustainable supply chain management is crucial due to its significant impact on businesses, society, and the environment. The modern global economy relies on complex supply chains that connect raw materials, production, and consumers. Incorporating sustainability in these chains ensures long-term economic viability while addressing pressing environmental and social challenges.

Environmental Impact:

- According to the United Nations, supply chains account for over 50% of global greenhouse gas emissions. SSCM helps mitigate climate change by reducing emissions, waste, and energy consumption.
- Efficient resource management reduces deforestation, water depletion, and pollution, aligning with global sustainability goals like the UN Sustainable Development Goals (SDGs).

Social Benefits:

- Ethical sourcing improves labour conditions and supports fair wages, particularly in developing regions.
- Practices like fair trade empower communities by ensuring equitable economic benefits.

Economic Advantages:

- SSCM fosters innovation, helping businesses develop sustainable products and processes.
- It enhances brand reputation and customer loyalty, as consumers increasingly prioritise sustainability in purchasing decisions.
- Efficient supply chains reduce costs through energy savings, waste minimization, and streamlined logistics.

Legislative and Market Trends:

- Governments and international organizations are imposing stricter regulations on emissions and ethical practices.
- Companies practicing SSCM gain a competitive edge by proactively addressing these requirements.

Topicality:

- Reports like the MIT State of Supply Chain Sustainability 2022[1] show a growing commitment among industry leaders to sustainability, driven by both regulatory pressures and market demand.

SSCM, therefore, is not just a moral imperative but a strategic necessity for businesses aiming to thrive in an increasingly sustainability-conscious world.

The WebQuests for Sustainable supply chain management

WebQuest 1: Green Food, Green Planet: The Green Food Industry in the Green Supply Chains

Description:	Workload (hours): 8 hours
Green Food, Green Planet" explores the critical role of green supply chains in reducing the environmental impact of the food industry. Europe generates over 57 million tonnes of food waste annually, making sustainable practices an urgent necessity. This WebQuest investigates how sustainable production practices, waste reduction, and ethical sourcing contribute to minimizing the industry's carbon footprint. By researching companies like Danone, Alter Eco, and BrightFarms, students will analyse successful strategies and propose solutions for a greener, more responsible food industry. The goal is to inspire awareness and action, empowering future consumers to make informed, eco-conscious choices.	

[1] https://sustainable.mit.edu/wp-content/uploads/2024/09/2022_MIT-CTL-State-Supply-Chain-Sustainability-2022.pdf

<table>
<tr><td colspan="2">Objectives:

● Understand the principles of green supply chains: Learn about sustainable production practices, waste reduction, and carbon footprint minimization. Evaluate their impact on the environment and food industry.

● Analyse real-world examples: Explore how companies like Danone, Alter Eco, and BrightFarms implement sustainable practices. Assess their effectiveness in achieving sustainability goals.

● Develop strategic thinking: Propose innovative strategies to improve the green supply chain of a chosen company or product. Foster critical thinking, research skills, and environmental responsibility.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge

Basic theoretical knowledge of the principles and practices of the environmentally responsible food industry and green supply chain

Use of scientific resources in research and analysis of sustainability strategies

Knowledge of current food market trends and sustainable innovations.</td><td>Skills

Developing research capacity in sustainable production practices and green supply chains

Students will be able to critically analyse sustainability strategies and evaluate their effectiveness

Students will be able to independently formulate strategies to improve green supply chains and achieve sustainability goals.

Develop presentation skills, including the ability to present information clearly and convincingly.</td><td>Responsibility & Autonomy

In teamwork, they learn how to work together effectively, sharing responsibility and results

Students develop a responsible attitude towards sustainability and understand its importance for the global environment

Students will recognize the importance of ethical decision making when developing sustainability and corporate strategies.</td></tr>
</table>

Main activities/tasks:

In this WebQuest, students will explore the concept of green supply chains in the food industry, examining their importance for sustainability and analysing real examples of environmentally responsible food production. The main goal is to understand the environmental impact of the food industry and develop strategies for a more sustainable future.

To start, the concept of green supply chains will be introduced, focusing on how sustainable practices in production, packaging, and distribution can reduce food waste, lower carbon emissions, and protect biodiversity. Students will then form teams of three and select an environmentally responsible company or food product that applies green supply chain principles. The first task is research and analysis. Teams will investigate the chosen company or product to understand how ecological supply chain practices are implemented. Key aspects to consider include sourcing and procurement of raw materials, technologies used in production to minimize waste and pollution, packaging methods, distribution strategies that reduce carbon footprints, and waste management practices. Additionally, teams should consider the company's approach to corporate social responsibility (CSR), including its support for local communities and efforts to promote fair labour conditions.

Based on their research, teams will prepare a 5-7 slide presentation using tools like PowerPoint or Prezi. The presentation should include a brief introduction to the company or product, an explanation of its green supply chain practices, an analysis of its sustainability strategies — such as waste reduction, carbon footprint minimization, and ethical sourcing — and practical recommendations for improving the company's sustainability efforts. Each team will have five minutes to present their findings, followed by a group discussion to share feedback and reflect on the effectiveness of the strategies presented.

After the presentations, each team will develop a strategy to further enhance the ecological supply chain of their selected company. They will prepare a concise summary of their proposed strategy, highlighting practical and innovative solutions aligned with sustainability goals. To wrap up, the entire class will discuss the common challenges faced by the green food industry and the best practices identified during the WebQuest. Students will reflect on how the food industry can adapt to future challenges like population growth, sustainable protein sources, and biodiversity conservation.

Key resources:

Real examples of sustainable companies and exploration of future challenges, providing a solid basis for understanding and analysing ecological supply chains in the food industry.

Final remarks/hints for trainers (150 to 250 words):

As the trainer facilitating this WebQuest, your role is to guide students through exploring green supply chains in the food industry, encouraging critical thinking and collaboration. Clearly explain the purpose of the WebQuest and the importance of sustainability in the modern food industry. Ensure students understand key concepts such as sustainable production practices, waste reduction, minimising carbon footprints and corporate social responsibility.

Encourage teams to use the suggested resources to build a strong foundation for their research. Support them in accessing and analysing reliable information, whether through the recommended articles, videos, or by reaching out to companies for insights. Create an interactive environment by organising discussions or debates on the obstacles and solutions to sustainable food production. During the presentations, foster a constructive feedback culture, emphasising respectful listening and thoughtful questioning. Encourage students to think beyond their findings, reflecting on how their proposed strategies could be implemented in real-world scenarios. In the strategy development phase, guide teams to propose realistic and innovative solutions, considering the economic, social, and environmental dimensions of sustainability.

Finally, help students connect their learning to their everyday choices as consumers, emphasizing the importance of supporting sustainable practices in their own lives. Your role as a mentor will be crucial in motivating and inspiring them to become conscious, informed advocates for a greener future.

WebQuest 2: Fair Trade Futures – Ethical Sourcing in Global Supply Chains

<table>
<tr><td>Description:

Ethical Sourcing in Global Supply Chains is an interactive WebQuest that explores the principles of ethical sourcing and fair-trade practices in global commerce. Participants will examine the social, economic, and environmental impacts of supply chains and learn how responsible sourcing promotes sustainability and fair labour practices. Through research, case studies, and supplier evaluations, teams will develop a strategic proposal for a fictional company's board of directors that outlines actionable steps for implementing ethical sourcing. This WebQuest enhances critical thinking, teamwork, and presentation skills and empowers students to advocate for sustainable business practices.</td><td rowspan="2">Workload (hours): 8 hours</td></tr>
<tr><td>Objectives:

Understand Ethical Sourcing and Fair Trade - Explore the principles of ethical sourcing and fair-trade practices, examine their impact on businesses, communities and the environment, and identify key challenges and opportunities in global supply chains.

Develop strategic sourcing skills - Learn to analyse supply chains, assess suppliers' sustainability practices and develop effective strategies for integrating ethical sourcing and fair trade into business operations, promoting responsible decision-making.

Develop Critical Thinking and Communication Skills - Apply research, teamwork and presentation skills to develop a compelling proposal for a company's board of directors, outlining the benefits and implementation strategies of fair trade and ethical sourcing initiatives.</td></tr>
<tr><td colspan="2">Learning Outcomes</td></tr>
</table>

Knowledge	Skills	Responsibility & Autonomy
Obtain knowledge of ethical sourcing and fair-trade practices. Understand the importance and impact of ethical sourcing and fair-trade practices on communities and the environment.	Develop skills in mapping and analysing supply chains to identify sustainability hotspots and areas for improvement. Acquire skills in supplier engagement, and performance measurement for sustainable procurement.	Exercise autonomy in making informed decisions regarding supplier selection and relationship management. Take responsibility for managing the professional development of individuals and groups. Articulate the importance of ethical sourcing and fair-trade practices effectively.

Main activities/tasks:

In the Fair-Trade Futures: Ethical Sourcing in Global Supply Chains WebQuest, students work in teams to develop a strategic proposal on ethical sourcing and fair-trade practices. This assignment simulates a professional business environment where participants apply their academic knowledge to real-world business sustainability challenges.

The activity begins with research and an introductory overview of ethical sourcing and fair trade. Students explore the importance of these practices in global supply chains, highlighting their economic, social and environmental benefits. They analyse how fair trade ensures better wages and working conditions while promoting environmental responsibility.

Once the groundwork has been laid, teams define the core objectives of their proposal. These may focus on improving working conditions, minimising environmental impact and promoting community development. They then move on to formulating strategies for integrating ethical sourcing into a company's supply chain. This includes developing criteria for selecting ethical suppliers, establishing supplier engagement processes, and designing compliance audits and training programmes.

To ensure a structured approach, the teams draw up a step-by-step implementation plan. This plan includes a clear timeline with key milestones, assigned responsibilities and resource allocation. As challenges are inevitable when implementing ethical sourcing, students identify potential barriers, such as supplier resistance or increased costs, and propose innovative solutions to overcome them.

The proposal also includes an analysis of expected outcomes. The teams describe the expected benefits of ethical sourcing, such as improved transparency, enhanced brand reputation and long-term economic sustainability. To support their recommendations, they examine case studies of successful companies that have adopted fair trade practices and extract key lessons and best practices. They will also conduct a supplier study to identify potential partners that are aligned with ethical sourcing principles and assess their working conditions, environmental impact and community involvement.

The final stage of the WebQuest involves the creation and delivery of a compelling multimedia presentation. Using data visualisations, case study highlights and persuasive arguments, teams present their findings to a simulated board of directors. Their goal is to convince decision-makers of the necessity and feasibility of integrating Fair Trade principles into business operations.

By the end of this WebQuest, students will have gained valuable skills in research, critical thinking, teamwork and professional communication. More importantly, they will develop a deeper understanding of sustainable business practices and their role in shaping a fairer and more responsible global economy.

Key resources:

Fairtrade Foundation, Environment Co, FasterCapital, WFTO, NASA Climate Change, Global Biodiversity Outlook, Fairtrade Fortnight, ethical sourcing, sustainable procurement, supplier engagement, compliance audits.

Final remarks/hints for trainers:

Teachers play a crucial role in guiding students through this WebQuest, ensuring that they develop a solid understanding of ethical sourcing and fair-trade practices, while enhancing their research, critical thinking and presentation skills. To maximise engagement and learning outcomes, consider structuring activities with clear milestones and encouraging collaborative discussion.

Start by providing background information on fair trade and ethical sourcing, using real-world examples to illustrate their impact. Encourage students to think critically about global supply chains and the ethical dilemmas faced by companies. Facilitate brainstorming sessions in which teams define the objectives of their proposals and develop strategies for implementation.

As students work on their research, direct them to reliable sources, such as case studies of companies successfully implementing fair trade practices. Guide them in analysing supplier selection criteria, compliance monitoring and sustainability initiatives. Encourage them to evaluate both the benefits and challenges of ethical sourcing and encourage discussion on possible solutions.

For the final presentation, advise students on effective communication strategies, including the use of visual aids, storytelling techniques and persuasive arguments. Encourage active participation by simulating a boardroom setting where teams present their proposals and answer critical questions.

Throughout the WebQuest, foster an environment of inquiry and reflection that helps students relate ethical sourcing principles to broader issues of sustainability, corporate responsibility and consumer behaviour. In the end, they should feel empowered to advocate for fair and ethical business practices in their future careers.

WebQuest 3: Lifecycle Legends: Mastering Product Durability in Sustainable Supply Chains

<table>
<tr><td>Description:

Lifecycle Legends WebQuest explores how sustainable product development and extended product life cycles can reduce environmental impact and enhance business competitiveness. Through teamwork, research, and real-world examples, students will analyse eco-friendly products, assess strategies for product life extension, and develop business models aligned with circular economy principles. By examining case studies from companies like IKEA, Adidas, and Fairphone, participants will understand the benefits of sustainable practices and identify challenges in implementing durable product solutions. This WebQuest empowers students to think critically about sustainable design and contribute to a more responsible, eco-conscious economy.</td><td rowspan="2">Workload (hours): 10 hours</td></tr>
<tr><td>Objectives:

Understand sustainable product development: learn the principles of eco-friendly product design, product life extension, and their impact on reducing waste and environmental degradation.

Analyse circular business models: explore how businesses apply strategies like modular design, recycling, and green manufacturing to create sustainable, durable products and maintain competitiveness.

Develop critical thinking and problem-solving skills: assess challenges in implementing sustainable product strategies and propose innovative solutions that balance economic viability with environmental responsibility.</td></tr>
<tr><td colspan="2">Learning Outcomes</td></tr>
</table>

Knowledge	Skills	Responsibility & Autonomy
Basic theoretical knowledge of environmental product development. Basic theoretical knowledge of how a sustainable business model works. Knowledge of the structure of the Business Model Canvas. Basic theoretical knowledge on the possibility of extending the product life cycle.	Recognize the environmental potential of product development. Outline the main elements of a circular business model that are essential for environmentally conscious product development. Be able to critically examine environmentally responsible production and identify the barriers that may hinder the operation of an environmentally responsible business model.	Developing our own understanding of sustainable product development and product life extension In unexpected decision situations, independently think through and develop comprehensive, grounded sustainable supply chain management issues based on given resources. Responsibly participates in the development and justification of professional views based on the fundamentals of sustainable supply chain management.

Main activities/tasks (300 to 500 words):

In this WebQuest, students will explore how to develop products in a way that is good for the environment and good for business.

The tasks are designed to help students develop research skills, think critically, and understand the principles of the circular economy.

To start, students will be divided into small teams of three. Each team will select a real or hypothetical company from a specific economic sector and research its sustainable product development practices. They will investigate ways to make products more sustainable, like using materials that can be easily recycled, setting up take-back programs, and designing products in a way that uses fewer resources.

Teams should use the resources provided, which include articles, videos, and case studies. If possible, they should also talk to professionals to learn more about how these ideas are used in practice.

Using the Business Model Canvas, each team will design a sustainable business model for their selected company, considering the nine components: customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structures. They should identify critical points that may hinder the implementation of their model and propose solutions to address these challenges.

Each team will prepare a presentation summarising their research, proposed business model, and identified obstacles. Then, they will present their work to the class, followed by a group discussion to provide feedback. The class will then collectively assess and rank the models based on how easy they are to implement, how creative they are, and how well they promote sustainability.

To finish, students will reflect on the challenges of implementing sustainable product development in real-world contexts and discuss how these practices can be integrated into future business strategies and everyday decisions.

Key resources:

Articles, videos, case studies, Business Model Canvas, eco-design, modular design, circular economy, IKEA, Adidas, Fairphone, product life extension, sustainability strategies.

Final remarks/hints for trainers:

When facilitating this WebQuest, focus on helping students connect theoretical concepts of sustainable product development to real-world applications. Start by ensuring that students understand the importance of extending product life cycles and how this contributes to reducing waste, conserving resources and promoting circular economy principles. Encourage critical thinking and creativity, especially when analysing business models and proposing solutions for sustainable product development.

Guide students to make effective use of the resources provided, including articles, case studies and the Business Model Canvas. Where possible, suggest that they contact experts or explore additional sources to gain deeper insights. Emphasise teamwork and open communication as these skills are essential for developing and evaluating sustainable business models.

Foster a constructive feedback environment during presentations, encouraging students to reflect on the feasibility and impact of their strategies. Help them to recognise the practical challenges of implementing sustainable practices in business, balancing profitability with environmental responsibility. Finally, encourage students to consider how these practices may influence their future career and personal choices, highlighting the growing importance of sustainability in today's business world.

WebQuest 4: Mastering Sustainable Supply Chain Excellence

Description:	Workload: 10 hours
Sustainable Supply Chain Excellence is an interactive WebQuest designed to introduce learners to Sustainable Supply Chain Management (SSCM). In today's global economy, integrating sustainability into supply chain operations is essential for long-term success. This WebQuest provides participants with the knowledge, skills and tools to analyse and implement sustainable practices that increase efficiency, reduce environmental impact and support social responsibility.	

<table>
<tr><td colspan="2">Through real-world case studies, expert consultations, and hands-on Living Lab interactions, learners will explore best practices, identify sustainability challenges, and develop actionable solutions. They will take on the role of sustainability consultants and create a comprehensive proposal to transform a company's supply chain.

By engaging with academic resources, industry experts and innovative technologies, participants will gain a practical understanding of SSCM - preparing them to lead sustainability initiatives in their future careers.</td><td rowspan="2"></td></tr>
<tr><td colspan="2">Objectives:

1. Understand the fundamentals of SSCM - Develop a solid understanding of the principles of sustainable supply chain management, including its environmental, social and economic dimensions, and recognise how sustainable practices contribute to long-term business resilience and ethical responsibility.
2. Analyse and improve supply chain sustainability - Identify sustainability challenges within supply chains, assess opportunities for improvement using case studies and real-world data, and propose strategies to improve efficiency, reduce environmental impact, and promote ethical sourcing.
3. Apply sustainable solutions in real-world contexts - Work with industry experts, stakeholders, and academic resources to develop a practical proposal that integrates green technologies, circular economy principles, and responsible supplier management into business operations.</td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Understand the principles and importance of sustainable supply chain management (SSCM).

Recognise key components, functions, and processes</td><td>Analyse and identify sustainability hotspots and areas for improvement within supply chains.</td><td>Manage and improve supply chain processes with a focus on sustainability.

Make informed decisions, balancing economic</td></tr>
</table>

involved in sustainable supply chains. Awareness of the environmental, social, and economic impacts of supply chain decisions.	Apply SSCM principles to enhance efficiency, reduce environmental impact, and support social equity. Evaluate and implement sustainable practices and technologies.	performance with environmental and social considerations. Advocate for and implement sustainability initiatives within supply chain operations.

Main activities/tasks:

In the Mastering Sustainable Supply Chain Excellence WebQuest, participants take on the role of sustainability consultants, researching, developing and presenting a proposal to transform a company's supply chain with sustainable practices. This process involves hands-on engagement with industry experts, real suppliers and academic resources to develop practical, data-driven solutions.

The journey begins with an exploration of the principles of Sustainable Supply Chain Management (SSCM), where participants explore the fundamentals of sustainability in business operations. Through university connections, they engage with sustainability departments or administrative offices to understand current supply chain practices. This initial phase lays the foundation for more in-depth research into best practices, emerging trends and industry innovations by analysing academic articles, industry reports and relevant case studies.

With a solid theoretical foundation, participants move on to analysing real-world case studies to identify the challenges, strategies and successful implementation methods used by companies. Through discussions with professors and industry experts, they gain valuable insights into sustainability efforts across different sectors. This phase encourages critical thinking and collaboration as students share their findings and apply theoretical knowledge to real business contexts.

Consulting with experts is another key step, providing direct access to professionals specialising in supply chain sustainability. Using university networks, participants arrange interviews and informal meetings with faculty members or guest speakers who provide first-hand knowledge of industry challenges and innovations. These interactions help refine their understanding of how companies are implementing sustainability initiatives and overcoming operational constraints.

Participants then conduct a supplier analysis, examining the sustainability practices of suppliers used by their university or a local company. Through collaborative teamwork, they assess areas for improvement, such as waste reduction, logistics optimisation and ethical sourcing. These findings are used to develop research-driven strategies that address real sustainability gaps in the supply chain.

The next step is to develop a sustainability proposal that defines the organisation's current practices, identifies targets and recommends sustainable solutions. The proposal outlines strategic approaches such as implementing green technologies, optimising energy efficiency and fostering responsible supplier partnerships. It also includes a well-structured implementation plan with clear timelines and expected outcomes to ensure a viable and impactful transformation of the company's supply chain.

Finally, participants prepare and present their findings to a panel of university faculty, business leaders and sustainability experts. The presentation includes a PowerPoint or video that summarises key findings, supported by visuals and data to enhance engagement. Defending the proposal requires participants to respond to panel questions and demonstrate a comprehensive understanding of sustainable supply chain management and the ability to propose effective, real-world solutions.

By completing this WebQuest, participants will gain both theoretical knowledge and practical experience, equipping them with the necessary skills to advocate and implement sustainability initiatives in supply chain management. Through research, collaboration and real-world application, they will develop the competencies needed to drive meaningful change in the global business landscape.

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Key resources:

Articles, case studies, industry reports, MIT Center for Transportation & Logistics, CSCMP, Supply Chain Management Review, Business Model Canvas, State of Supply Chain Sustainability 2022, eco-friendly practices, sustainable logistics, ethical sourcing.

Final remarks/hints for trainers:

For trainers facilitating this WebQuest, it is essential to create an interactive and engaging learning environment that encourages critical thinking, collaboration and practical application. Given the complexity of SSCM, participants should be guided to make connections between theoretical concepts and real-world challenges. Encouraging active participation through Living Lab interactions, expert consultations and case study analysis will enhance their understanding and problem-solving skills.

An effective approach is to encourage team-based activities where learners can work together on supplier analysis, sustainability assessments and proposal development. Providing access to academic resources, industry reports and expert networks will help them develop well-researched, data-driven solutions. Trainers should also encourage

discussions that challenge assumptions and stimulate new perspectives on supply chain sustainability.

It is important to help learners structure their proposals effectively, ensuring clarity in objectives, strategies and implementation plans. Trainers can provide feedback sessions before final presentations to help refine their ideas. In addition, encouraging a constructive Q&A environment during presentations will allow participants to practice defending their proposals, thereby improving their communication and critical thinking skills.

Finally, emphasising the real-world impact of sustainable supply chain practices will inspire students to apply their knowledge beyond the classroom. Encouraging them to keep abreast of emerging trends and innovations in SSCM will prepare them to become future leaders in sustainable business transformation.

WebQuest 5: Developing a Green Procurement Strategy for SMEs

Description:	Workload (hours): 10 hours
This WebQuest explores the concept of green procurement, focusing on its importance for small and medium-sized enterprises (SMEs). Participants will learn how to create a green procurement strategy that balances sustainability with financial considerations. By researching eco-friendly products, evaluating suppliers based on environmental performance, and developing effective engagement strategies, participants will gain practical skills to implement sustainable procurement practices. The WebQuest also emphasizes monitoring and evaluating the effectiveness of the strategy through key performance indicators. Ultimately, it aims to empower SMEs to reduce their ecological footprint while maintaining competitiveness and fostering responsible business practices.	

Objectives: Understand the principles of green procurement: learn the key concepts and importance of green procurement for SMEs, focusing on reducing environmental impact while maintaining cost-effectiveness. Develop a comprehensive green procurement strategy: gain practical skills in researching, evaluating suppliers, and selecting eco-friendly products to create an effective, sustainable procurement plan for SMEs. Apply monitoring and evaluation techniques: learn to use key performance indicators to assess the effectiveness of green procurement strategies and make informed improvements.	
Learning Outcomes	

Knowledge	Skills	Responsibility & Autonomy
● Understand the core principles and importance of green procurement. ● Identify key criteria and standards for evaluating suppliers' environmental performance. ● Recognize various eco-friendly products and services that have a reduced environmental impact. ● Learn about budget considerations, including cost categories, potential savings, and financial incentives for sustainable practices.	● Conduct comprehensive research using academic databases and government/NGO websites. ● Develop clear and concise green procurement policies using document processing tools. ● Create checklists and rubrics for evaluating suppliers based on environmental performance. ● Perform budget analysis using financial planning tools like Excel or Google Sheets. ● Use performance tracking tools like KPI dashboards to monitor sustainability metrics. ● Engage stakeholders through effective communication plans, training sessions, and workshops.	● Take responsibility for developing and implementing a green procurement Strategy that aligns with an SME's environmental objectives. ● Lead initiatives to engage suppliers, employees, customers, and the community in sustainable practices. ● Demonstrate autonomy in conducting research and synthesizing information into practical guidelines.

Main activities/tasks:

This WebQuest guides students through the process of creating a green procurement strategy for small and medium-sized enterprises (SMEs), helping them understand the balance between environmental responsibility and business viability. The activities are designed to encourage research, critical thinking, teamwork, and the practical application of sustainability principles.

To begin, the concept of green procurement and its relevance for SMEs is introduced, covering key topics like eco-friendly products, supplier evaluation, budget considerations, and monitoring tools like key performance indicators (KPIs). Students are given access to recommended resources, such as the ISO 20400:2017 Sustainable Procurement Guidance, scientific articles, and case studies, to support their research.

Students work in small teams to select an SME or a hypothetical business scenario, researching the company's current procurement practices, evaluating the environmental impact of its suppliers, and identifying areas for improvement. They use evaluation tools like checklists, rubrics, and certifications such as ISO 14001 to assess supplier sustainability.

Each team develops a comprehensive green procurement strategy, defining its purpose, setting evaluation methods, and suggesting eco-friendly products or services. Budget considerations are addressed through cost-benefit analyses using tools like Excel or Google Sheets, weighing initial costs against long-term savings and potential financial incentives. Teams also design a simple KPI dashboard to monitor and assess the strategy's effectiveness.

Teams prepare a concise written summary and a 5-7 slide presentation of their strategy. They share their work with the class, participate in constructive discussions, and reflect on how to adapt their strategies to real-world challenges. In the final reflection, students connect their findings to broader sustainability issues and explore the potential for SMEs to become leaders in green practices. By the end of the WebQuest, students gain valuable skills in research, analysis, planning, and sustainability advocacy.

Key resources:

Academic articles, videos, case studies, ISO 20400:2017, industry standards, SME examples, research tools, sustainability guidelines.

Final remarks/hints for trainers:

As a trainer, your role in this WebQuest is to facilitate students' understanding of how SMEs can buy in a way that is good for the environment and guide them in applying theoretical knowledge to real-life situations.

Begin by clearly explaining the objectives of the WebQuest and making sure that students understand why sustainable procurement is important in today's business environment. Then, encourage them to explore the resources provided, like academic articles, case studies, and industry standards like ISO 20400:2017, to build a strong knowledge base.

Help students choose a suitable SME or business scenario for their research.

Encourage critical thinking by asking them to analyse not only the environmental benefits of green procurement but also its financial feasibility and operational challenges. Help them use tools like checklists, rubrics, and KPIs to measure supplier performance and sustainability outcomes effectively.

During presentations, encourage everyone to give constructive feedback and discuss the strengths and weaknesses of each team's strategy.

Help students think about how they can adapt their strategies to real-world contexts, considering the ever-changing nature of sustainability practices.

Finally, emphasise the importance of collaboration and the value of applying sustainable practices in business, helping students understand their role as future professionals in promoting responsible and ethical procurement.

Relation to the Sustainable Learning Experience & Relation to other topics

Relation to the Sustainable Learning Experience

This WebQuest aligns with the Sustainable Learning Experience by integrating experiential, inquiry-based and problem-solving approaches to sustainability in supply chain management. Learners engage in real-world applications, fostering critical thinking and innovation while working on tangible sustainability challenges. By incorporating Living Lab interactions, expert consultations, and supplier

analysis, participants gain hands-on experience in identifying and addressing sustainability gaps in supply chains.

The learning process is designed to be collaborative and interdisciplinary, allowing students to apply sustainability principles in a business context while honing key skills such as decision-making, stakeholder engagement, and strategic planning. By requiring participants to develop a comprehensive sustainability proposal, the WebQuest encourages autonomy and responsibility in designing practical, actionable solutions for sustainable supply chains.

In addition, this approach enhances digital literacy and research skills as learners are required to analyse industry reports, academic literature, and case studies to inform their proposals. The combination of theoretical foundations and real-world application ensures that learners are prepared to advocate and implement sustainability initiatives in their future careers, bridging the gap between education and professional practice in sustainable supply chain management.

Relation to Other Topics

Sustainable Supply Chain Management (SSCM) is closely related to several other areas of sustainability. It is closely linked to sustainability and ESG (environmental, social, and governance) principles, as ethical sourcing, transparency, and sustainability reporting are critical components of responsible supply chain management. Stakeholder engagement and ESG disclosure play an important role in ensuring accountability and sustainability in global supply chains.

SSCM also intersects with sustainable finance, as financial instruments such as green bonds and socially responsible investment (SRI) strategies are critical for financing sustainable supply chain initiatives. Investment decisions increasingly take sustainability metrics into account, and companies that integrate ESG principles into their supply chains benefit from improved investor confidence and long-term financial stability.

Another important link is with Circular Economy (CE) business models, particularly in areas such as waste reduction, resource efficiency, and product life extension. Sustainable supply chains prioritise closed-loop systems, responsible sourcing and green logistics, in line with circular economy principles. By implementing strategies such as green procurement and ethical supplier partnerships, companies can reduce waste and optimise resource use, contributing to a more sustainable global economy.

These interrelationships highlight that SSCM is not an isolated concept but rather a core element of sustainable business practices that requires a multidisciplinary approach to ensure long-term environmental, social, and economic benefits.

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4.3. Topic 3 Sustainable Finance

What is it?

Description of what is and what is not the topic about.

Sustainable finance refers to financial services and investment strategies that incorporate Environmental, Social, and Governance (ESG) factors to support long-term economic stability and societal well-being (European Commission, 2021). It aims to align financial flows with global sustainability goals, such as climate action, social equity, and corporate responsibility, ensuring that capital is allocated to projects that generate both financial returns and positive environmental and social impact (UNEP, 2022).

What is NOT sustainable finance?

Sustainable finance is often misunderstood or misrepresented, leading to misconceptions about its principles and objectives. It is not merely a marketing tool or public relations strategy for companies to appear environmentally conscious while continuing unsustainable practices—a phenomenon known as greenwashing (OECD, 2020). Additionally, sustainable finance does not prioritize short-term

financial gains at the expense of long-term economic, social, and environmental stability**.** Unlike traditional investment models focused solely on profit maximization, sustainable finance considers both financial returns and broader societal impacts (Friede et al., 2015). Moreover, sustainable finance is not limited to green investments alone, as it encompasses social and governance aspects, including ethical labour practices, corporate transparency, and financial inclusion (European Commission, 2021). Finally, sustainable finance does not exclude financial performance but rather integrates sustainability considerations to enhance long-term resilience and risk management, benefiting both businesses and society.

In Table 1 the key differences between sustainable finance and traditional or unsustainable finance are highlighted.

Sustainable finance	VS.	**Unsustainable finance**
Long-term value creation		Short-term profit maximization
ESG considerations		Profit-only focus
Risk management (climate, social)		High-risk speculation
Transparent reporting		Opaque financial practices in some cases
Encourages responsible investments		It might support environmentally/socially harmful businesses if they are profitable

Table 1 Sustainable vs. Unsustainable finance: Key differences

What are the Key Components of Sustainable Finance?

Sustainable finance encompasses various financial practices and instruments, including:

1) **Green Finance** - investments in environmentally sustainable projects, such as renewable energy, energy efficiency, and carbon reduction initiatives (OECD, 2020).

2) **Socially Responsible Investing (SRI**) - investment strategies that exclude companies involved in unethical practices while prioritizing businesses with strong social and ethical performance (Friede et al., 2015).
3) **Impact Investing** - investments made with the intention of generating measurable positive social and environmental outcomes alongside financial returns (Global Impact Investing Network, 2021). Unlike traditional investments that focus solely on profit, impact investing targets businesses and projects that contribute to sustainable development goals (SDGs), such as renewable energy, social inclusion, and ethical supply chains (Friede et al., 2015). Among its key characteristics are:
    - Dual Focus: Generates both financial and measurable social/environmental returns.
    - Market-Based Solutions: Invests in sustainable businesses rather than donations or grants.
    - Performance Measurement: Uses ESG indicators and social impact metrics.
4) **Venture philanthropy** combines elements of traditional philanthropy and impact investing by providing financial support, strategic guidance, and capacity-building to social enterprises and non-profits (EVPA, 2022). Unlike conventional donations, venture philanthropy ensures long-term support and measurable impact through engaged funding models. Venture philanthropy and impact investing share a common goal—funding projects that drive positive social and environmental impact—but differ in financial return expectations (OECD, 2020). While impact investors seek financial and impact returns, venture philanthropists may focus entirely on social impact.
5) **Crowdfunding** is a collaborative funding model that allows individuals and organizations to raise capital from a large pool of investors via online platforms (Mollick, 2014). In the context of sustainable finance, crowdfunding facilitates access to finance for green projects, social enterprises, and impact-driven startups. Crowdfunding complements venture philanthropy and impact investing by expanding access to capital, particularly for early-stage sustainable ventures (European Commission, 2021). It also promotes financial inclusion by enabling small investors to support sustainable businesses.
6) **ESG Integration** - the inclusion of environmental, social, and governance considerations in financial decision-making to mitigate risks and enhance long-term value creation (MSCI, 2022).
7) **Sustainable Bonds & Loans** – these include financial instruments like green bonds and social bonds that fund sustainable projects, including climate resilience initiatives and affordable housing (World Bank, 2020).

Why is it important?

Sustainable finance is critical for addressing global challenges and ensuring economic resilience in the future. This is why it is one of the thematic domains included in the SustainEdX Toolkit for higher education students. It is essential that today's graduates adapt sustainable investing approach in their future endeavours to create prerequisites for a new generation of investors and entrepreneurs having sustainability in mind from the outset. The significance of sustainable finance is reflected in the following aspects:

1) **Combating Climate Change**

Sustainable finance plays a vital role in redirecting capital toward low-carbon solutions, climate adaptation strategies, and green infrastructure, helping to mitigate the adverse effects of climate change (UNEP FI, 2022). Financial institutions increasingly disclose climate-related risks under frameworks such as the Task Force on Climate-Related Financial Disclosures (TCFD) (TCFD, 2021).

2) **Promoting Long-Term Economic Stability**

Unlike short-term profit-driven models, sustainable finance prioritizes long-term financial stability by addressing climate risks, biodiversity loss, and social inequalities. Studies suggest that ESG-aligned investments tend to outperform traditional investments over the long run, making them more resilient to economic shocks (Friede et al., 2015).

3) **Encouraging Ethical and Socially Responsible Business Practices**

The social component of sustainable finance ensures that companies promote fair labour practices, diversity, and ethical supply chains. Governments and investors are increasingly requiring companies to comply with human rights and corporate responsibility frameworks, such as the UN Guiding Principles on Business and Human Rights (United Nations, 2011).

4) **Driving Innovation in Green Technologies**

Sustainable finance accelerates technological innovation in green industries by funding the development of renewable energy, circular economy models, and low-carbon technologies (OECD, 2020). Investment in green technology also fosters job creation in sustainable industries, contributing to a just transition (ILO, 2018).

5) **Regulatory Compliance and Risk Mitigation**

Governments and international organisations are strengthening regulatory frameworks around sustainability, making ESG integration essential for companies and investors. The EU Sustainable Finance Disclosure Regulation (SFDR) mandates

transparency on sustainability risks and ESG-related disclosures (European Commission, 2021).

The WebQuests for Sustainable Finance

In this section you will learn more about the specific topics of each of the five WebQuests within the thematic domain “Sustainable finance”.

WebQuest 1: Crowdfunding: Alternative & collaborative funding models

<table>
<tr><td>Description

This WebQuest aims to introduce and explore the concept of crowdfunding as a sustainable method of raising capital as well as to show learners how they can set up a real crowdfunding campaign if they wish so.

It provides practical knowledge about the origins and evolution of crowdfunding, detailing various types such as reward-based, donation-based, equity-based, and debt-based models and provides practical resources and guidelines on how students can implement their own crowdfunding campaign.

The process of the WebQuest goes through the stages of developing one’s perception of what crowdfunding is; how do a crowdfunding campaign looks like and what is it; setting up crowdfunding campaign concept and researching on its feasibility; implementing ones crowdfunding campaign on real platform (optional) and finally pitching the concept in front of the class.</td><td rowspan="2">Workload: 8 hours to 2-3 days in case learners launch a real crowdfunding campaign</td></tr>
<tr><td>Objectives :

1. Understand the concept of crowdfunding and its various forms (e.g., donation-based, reward-based, equity-based, lending-based).

2. Explore the role of crowdfunding as a collaborative and alternative funding mechanism for sustainable and innovative projects.
3. Develop a crowdfunding campaign for a project idea and pitch it in front of a jury.</td></tr>
<tr><td colspan="2">Learning Outcomes</td></tr>
</table>

Knowledge	Skills	Responsibility & Autonomy
Practical knowledge and advanced understanding of concepts and principles related to the origins of crowdfunding and how it has evolved over time. Practical knowledge about the different types of crowdfunding - reward-based, donation-based, equity-based, and debt-based. Practical knowledge related to case studies of successful crowdfunding campaigns to understand the strategies behind their success.	Ability to gather, evaluate, and synthesise information from various sources related to crowdfunding. Analyse different crowdfunding campaigns to determine factors contributing to their success or failure. Plan a detailed crowdfunding campaign, including setting funding goals, timelines, and promotional activities. Presentation skills in front of an audience.	Develop the ability to manage your time effectively to meet project deadlines. Set personal goals and monitor your progress throughout the WebQuest. Cultivate the ability to learn and explore new topics related to crowdfunding independently. Understand and respect the ethical considerations in crowdfunding, such as honesty, transparency, and respect for intellectual property.

Main activities/tasks

The task of this WebQuest has 4 components including:

- Research and analysis – learners have to research to form a perception of the different types of crowdfunding and key factors for a successful crowdfunding campaign.
- Campaign creation – to develop a theoretical or real (optional living lab activity) crowdfunding campaign.
- Strategic planning – to plan dissemination and marketing for their campaign.
- Evaluation and presentation – to evaluate the legal feasibility of their campaign and finally to pitch it in front of the class.

The process follows a simple structure to guide learners into achieving the aforementioned tasks and includes the following key stages:

- Team forming – learners have to first split in teams with specific responsibilities in order to ensure each will contribute for the assignment.
- Introduction to Crowdfunding – at this stage students will learn what is crowdfunding. The role of the trainers is to encourage them to go through the resources and even explore additional ones in order to form their own understanding of the topic.

- Research phase throughout which the learners have to analyse case studies, crowdfunding platforms, etc. to deepen their knowledge on the topic.
- Campaign development phase – learners have to elaborate their own crowdfunding campaign concept and they have the option to launch it for real through a chosen platform. This is the most complex stage of the process. The trainer has to encourage the teams to make a brainstorming session to formulate their crowdfunding idea. Next, they have to plan a marketing strategy for their campaign to whom, when, where and how they will be disseminating their crowdfunding idea to raise the necessary funds? The next step involves a mandatory living lab activity during which each team has to consult with stakeholders regarding the feasibility of their idea through a real focus group; interviews or surveys. Upon completion of this step, learners have the option to launch a real campaign.
- Presentation phase – at this stage learners have to train their presentation skills by pitching their crowdfunding campaign in front of the class.

Key resources: The resources include a mixture of articles, videos and other materials in order to cater for different learning styles of the students (e.g. visual, auditory, reading/writing, etc.).

Thematically the resources are grouped as follows:

- Articles and guides as well the Videos sections are aimed at providing knowledge base for the learners as to what is crowdfunding and how it works.
- Crowdfunding platforms – this section aims to provide practical knowledge to learners of how a crowdfunding campaign looks like and acquaint them with the tools that they can use to launch such in case they wish to.
- Case studies – this section provides inspirational and practical resources for the learners to help them get an idea how a successful campaign should look like in reality.
- Legal and ethical resources aim to make learners reflect on this important side of crowdfunding.
- Graphic design and presentation tools – this section aims to guide learners what kind of tools they can use to make their crowdfunding campaign more appealing as well as to stimulate their creative skills.

Final remarks/hints for trainers

The trainer's role in this WebQuest is to guide and support the learning process, inspire motivation, and ensure that all participants thoroughly understand the content and tasks. To achieve this, the trainer can offer valuable tips, such as posing thought-provoking guiding questions or encouraging trainees to explore additional resources beyond those provided.

For the different stages some guiding questions could be:

- Team forming - encourage the students to team up and assign responsibilities for the research and development phases.
- Introduction to crowdfunding – what is crowdfunding? How is it different than traditional capital raising? What are the pros and cons? What are the risks?
- Research phase – Do you find something in common between successful crowdfunding campaigns?
- Campaign development phase - What is the cause behind your crowdfunding campaign? Who will be your target audience to promote the campaign? Where and how will you promote it? What could be the legal risks in front of the crowdfunding campaign?
- Presentation phase – at this stage encourage students to follow the instructions. Feel free to ask them any thought-provoking questions in order to encourage deeper reflection on certain elements/topics of their presentations or to attract their attention on to important matters.

WebQuest 2: Questing for Sustainable Investing

Description	Workload:
This WebQuest introduces learners to venture philanthropy and impact investing as sustainable investment strategies. To engage them, it sets a compelling scenario where they act as financial consultants, tasked with creating a €1 million sustainable investment portfolio for a major client. Working in teams, they research and develop their portfolios, ultimately presenting them to the "client" and their financial advisors—played by their classmates. Throughout this WebQuest students are supposed to develop their own understanding of the terms venture philanthropy and impact investing; raise their awareness regarding the Sustainable development goals (SDGs) as they need to link each of their investment decisions to a specific SDG and finally, they have to convince the audience that the proposed investments are worthy and apart from financial benefits will have strong social and environmental impact.	3 hours
Objectives :	

<table>
<tr><td colspan="2">Understand the core principles and criteria of sustainable investing , including ESG (Environmental, Social, Governance) factors.
Understand the core principles of venture philanthropy and impact investing as means for sustainable investing.
Identify and evaluate different sustainable investment opportunities and their societal and environmental impact.
Develop sustainable investment portfolio aligned with sustainability goals and ethical considerations.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Practical knowledge and advanced understanding of concepts and principles impact investing and venture philanthropy.

Deeper knowledge of the UN’s Sustainable Development Goals (SDGs) and related initiatives contributing to their achievement.

Practical knowledge of identifying and measuring social and environmental impact of investments.</td><td>Develop skills in analysing investment portfolios through the lens of environmental, social, and governance (ESG) factors.

Acquire skills in integrating SDGs and ESG considerations into investment decision-making processes.

Enhancing research and communication skills.

Presentation skills in front of an audience.

Learning to tailor investment information for a broader audience.</td><td>Independently analyse the financial and non-financial impacts of investment decisions on sustainability.

Independently develop and implement sustainable finance strategies.</td></tr>
<tr><td colspan="3">Main activities/tasks

Within this WebQuest students are tasked to carry out research and based on it to elaborate a sustainable investment portfolio worth 1 million euro contributing to the achievement of the SDGs. Learners have to pitch their investment portfolio in front of a major client and his financial advisors (the class).</td></tr>
</table>

The process is designed in an easy-to-follow manner aimed at supporting the completion of the presented task. The specific steps include:

- Team forming – it's advisable to encourage learners to gather in teams of 2-3 people, entering the role of financial consultants.
- During steps "Get an idea of venture philanthropy and impact investing!" and "Learn about the SDGs", the teams have to research the provided resources and further ones in order to form their own understanding of the key terms – impact investing, venture philanthropy and SDGs.
- Find the best investment initiatives for the sustainable investment portfolio! (Living Lab activity) – at this stage the teams have to develop real criteria for social, environmental impact of their investments; define desired return of investment and identify real investments that may be matching these criteria to build the sustainable investment portfolio.
- Build the sustainable investment portfolio! – at this stage each team has to prepare their pitch following the instructions. Encourage them to put their best effort as in life they may be often asked to present important information in front jury or a panel.
- Make your case! Is the final stage where learners have to present their sustainable investment portfolios and justify the investment choices they made. It's advisable to set a strict time limit for each team – for instance 5 minutes so that they can also test their time management skills and ability to work under pressure. Maintain a balanced approach towards each of the teams by asking them 1 or 2 questions regarding their investment portfolios and choices in order to make the learners reflect on important aspects of the contents.

Key resources:

The resources include a mixture of articles, videos and other materials in order to cater for different learning styles of the students (e.g. visual, auditory, reading/writing, etc.).

Thematically the resources are grouped as follows:

- SDG-related resources – the official website of the SDGs as well as article explaining how to align investments to the SDGs which is part of students' assignment.
- Investing platforms – practical resources aimed at showcasing real examples of sustainable investing cases e.g. investing in social enterprises, project or other initiatives.
- Networks and associations connected to sustainable investing that provide case studies/examples/ useful information on the topic.
- Examples of impact investing funds and philanthropic foundations aimed at presenting what such entities do and how they function.

- Resources focused on impact investing and venture philanthropy as the key terms introduced within the WebQuest.

Final remarks/hints for trainers

The trainer's role in this WebQuest is to guide and support the learning process, inspire motivation, and ensure that all participants thoroughly understand the content and tasks. To achieve this, the trainer can offer valuable tips, such as posing thought-provoking guiding questions or encouraging trainees to explore additional resources beyond those provided.

For the different stages some guiding questions could be:

1. Get an idea of venture philanthropy and impact investing!

What is venture philanthropy?

What is impact investing?

How do these instruments differ from traditional investing tools?

What is the difference between impact investing and venture philanthropy?

What are the benefits of both tools?

1. Learn about the SDGs!

Which SDG do you think is crucial to be achieved? Which ones have slow progress?

2. Find the best investment initiatives for the sustainable investment portfolio!

What would be the criteria for financial return of the investments?

What would be the criteria for social and environmental impact?

Which initiatives are contributing to the SDGs you chose and how?

3. Build the sustainable investment portfolio! – encourage students to follow the instructions for the presentation.

4. Make your case!

Ask questions to learners to attract their attention and make them reflect upon important takeaways related to impact investing, venture philanthropy and how they can promote sustainable development.

WebQuest 3: Sustainable Impact Detectives: Evaluating SMEs

Description	Workload (hours):

<table>
<tr><td colspan="2">The "Sustainable Impact Detectives: Evaluating SMEs" WebQuest engages learners in assessing the sustainability practices of small and medium-sized enterprises (SMEs). Students have to work in teams and are tasked to analyse the environmental, social, and governance (ESG) strategies of existing SME. The task involves evaluating current practices, identifying areas for improvement, and proposing recommendations to enhance sustainability performance. The WebQuest aims to deepen understanding of ESG principles and introduce some of the most popular impact assessment strategies, develop analytical skills, and promote the application of sustainable practices within SMEs.</td><td rowspan="2">4 hours</td></tr>
<tr><td colspan="2">Objectives (2 or 3, 20-40 words per objective):

1. Analyse the sustainability performance of SMEs using ESG indicators and impact assessment tools.
2. Identify strengths and areas for improvement in SME sustainability strategies through critical evaluation.
3. Develop evidence-based report with recommendations to enhance the environmental and social impact of small and medium enterprises.</td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>In-depth knowledge of specific methodologies and frameworks

Understanding of data requirements and collection methods

Advanced knowledge in ESG reporting and communication</td><td>Develop skills to evaluate different impact assessment methodologies and select the most appropriate one for a given SME.

Ability to apply methodologies to real-world business scenarios

Skills to define and calculate key performance indicators (KPIs) and metrics to assess the SME's impact.</td><td>Independently research and choose the most suitable methodology for the selected SME.

Autonomy in designing the data collection plan and selecting data sources.

Independently develop and calculate key performance indicators (KPIs) and metrics to assess the SMEs impact</td></tr>
</table>

Main activities/tasks:

In this WebQuest students are tasked to apply an impact assessment methodology to a real-world SME. They have to research and choose an appropriate method, such as the Balanced Scorecard or Social Return on Investment (SROI), to evaluate the company's financial, social, and environmental impact. Moreover, they have to identify a real company (e.g. startup, established business, or transitioning company) that is open to collaboration. They have to gather relevant data for its operations and assess the company's impact against a chosen framework and document their findings and recommendations into a structured report which can be presented to the company at focus.

Upon completion of all steps in the "PROCESS", learners will complete the task. The specific steps stipulated are, as follows:

- Team forming – it's advisable to encourage learners to gather in teams of 4 people and dividing responsibilities based on the strengths of each team member.
- Get an idea of methodologies and frameworks fundamentals – at this stage of the WebQuest students have to start researching on their own what methodologies and frameworks exist to measure ESG for businesses as well as their specifics such as – application in certain sectors, for specific sizes of businesses, etc.
- Delve deeper into methodologies and frameworks – at this step each team will have to research to gain practical insights on the requirements of the methodology they have chosen to base their assessment upon.
- Putting Theory into Practice - Living Lab Activity – the final stage of the WebQuest is the living lab activity as it involves choosing and interacting with a real company to perform the ESG assessment. Learners have to make in informed choice of specific SME, choose a methodology against which to evaluate its ESG performance, collect data from different resources and/or directly from the company; perform the evaluation and finally to prepare a report summarising their assessment and making recommendations for the company on how to boost their ESG impact.

Key resources:

The key resources in this WebQuest are very focused and aim to provide information about ESG and the most popular impact assessment methodologies in order to support learners in developing a better understanding of these frameworks. The resources focus on frameworks like Global Reporting Initiative (GRI) Standards, Social Return on Investment (SROI) and others. It's advisable for the trainer to get well acquainted with the framework beforehand in order to be able to effectively facilitate the session and answer students' questions, if any.

Final remarks/hints for trainers:

The trainer's role in this WebQuest is to guide and support the learning process, inspire motivation, and ensure that all participants thoroughly understand the content and

tasks. To achieve this, the trainer can offer valuable tips, such as posing thought-provoking guiding questions or encouraging trainees to explore additional resources beyond those provided.

For the different stages some guiding questions could be:

1. Team up!

   Just encourage the learners to split into teams consisting of 4 people and distribute responsibilities within the group.

2. Get an idea of methodologies and frameworks fundamentals

   Think about what is ESG? What should a company report to demonstrate alignment with ESG principles?

   Which of the methodologies you reviewed seems aligned with the ESG requirements?

   What are the key requirements and indicators that are considered in each methodology? Make a list and think how you can collect such information from an SME?

3. Delve deeper into methodologies and frameworks

   Think about company size, industry, resources, and specific ESG priorities and based on this choose your methodology.

4. Putting Theory into Practice - Living Lab Activity

   When choosing a company, think about how much public information is available. How are you going to get more information regarding the company? Are there any persons that you can interview such as ESG experts?

   Check if there are sector-specific requirements related to ESG?

   Don't forget to you have to assess the impact in different areas (economic, social, environmental).

   When preparing the report – be concise and to the point, company managers have limited time.

WebQuest 4: Finance for the Future: Explore the Greener Side of Investing

Description:	Workload:
The "Finance for the Future: Explore the Greener Side of Investing" WebQuest educates participants on sustainable finance, emphasising green finance, social finance, and impact investing. Participants collaborate with media professionals to research under-reported areas within	3 hours

sustainable finance, such as impact investing in developing countries or green bonds for clean energy projects. The task involves analysing companies' financial performance through environmental, social, and governance (ESG) factors, integrating ESG considerations into investment decisions, and producing insightful articles or web content. The WebQuest aims to enhance research, communication, and collaboration skills, promoting responsible investment strategies that align with environmental and societal values.		
Objectives (2 or 3, 20-40 words per objective): 1. Understand the core principles and criteria of sustainable and green finance, including ESG factors. 2. Evaluate different financial instruments and investment strategies that support environmental and social sustainability. 3. Apply sustainability considerations to real-life investment scenarios and decision-making processes. 4. Develop and publish a research report/ article on green finance.		
Learning Outcomes		
Knowledge	Skills	Responsibility & Autonomy
Advance understanding of concepts and principles of sustainable finance, including green finance, social finance, and impact investing. Gain knowledge of sustainable investment strategies, financial instruments, and regulatory frameworks.	Develop skills in analysing the financial performance of companies and investment portfolios through the lens of ESG factors. Acquire skills in integrating ESG considerations into investment decision-making processes. Enhancing research and communication skills.	Independently analyse the financial and non-financial impacts of investment decisions on sustainability. Independently develop and implement sustainable finance strategies.

	Gaining practical experience collaborating with media professionals.	

Main activities/tasks:

Within this WebQuest learners are tasked to prepare and publish an insightful article in local media or online. The article has to focus on a chosen area of sustainable finance like impact investing in developing countries, green bonds for clean energy projects in specific regions. To do this, students have to make thorough research and collaborate with media experts/ journalists to prepare their article and publish it.

The PROCESS is designed to lead to the completion of the aforementioned task and includes the following steps:

- Team forming – similar to other WebQuest, here it's also recommended that students should work in teams to complete the task.
- Get an idea of Sustainable Finance – here learners are encouraged to delve deeper into the topic of sustainable finance e.g. understanding the difference between greenwashing and green finance; forming one's perception of green finance, social finance and impact investing. It's advisable to encourage students to also check the Additional resources section as it provides a plethora of additional useful resources on the topic.
- Explore Sustainable Investment Strategies – at this stage students are encourages to research and form and understanding of specific investment strategies like positive and negative screening as well as specific sustainable finance tools like green bonds. At this stage each team has to choose the specific sustainable financial instrument they will focus their article on.
- Putting Theory into Practice - Living Lab Activity – this is the step that requires real interaction with journalists and media to write and publish their article. Encourage learners to use graphic tools to prepare diagrams, infographics, etc. to make the article more appealing.
- Publishing the article and wide dissemination – at this step, each team has to identify media or channel to publish and disseminate their article. You can support the students with ideas for publishing in local media, free website or platforms like LinkedIn.

Key resources:

The key resources include videos, articles, reports and other relevant sources focused on:

- Definitions of sustainable investing and key terms (Investopedia, Global Sustainable Investment Alliances, etc.);
- Greenwashing as a challenge to sustainable investing.

- General news about sustainable finance and investing (Reuters, Bloomberg, etc.);
- Frameworks for sustainable investing and accounting such as: Principles for Responsible Investment; The Sustainability Accounting Standards Board (SASB).

Final remarks/hints for trainers:

The trainer's role in this WebQuest is to guide and support the learning process, inspire motivation, and ensure that all participants thoroughly understand the content and tasks. To achieve this, the trainer can offer valuable tips, such as posing thought-provoking guiding questions or encouraging trainees to explore additional resources beyond those provided.

For the different stages some guiding questions could be:

1. Team up! – just encourage students to split in teams and distribute responsibilities within the group to ensure efficient work.
2. Get an idea of Sustainable Finance
   - What is sustainable finance?
   - What is greenwashing?
   - What is difference between sustainable finance and greenwashing?
   - Can you provide examples of greenwashing and sustainable investments?
3. Explore Sustainable Investment Strategies
   - What is negative/positive screening? What is thematic investing?
   - What is the difference between green bonds, social bonds and microfinance?
4. Putting Theory into Practice - Living Lab Activity.
   - How would you structure the article? Provide them hints on how is best to structure the article e.g. Introduction, explanations, practical examples, Conclusion.
5. Publishing the article and wide dissemination
   - You can guide learners in their decision where to publish the article.
   - Ask them who would be their target audience and based on this they should choose the most relevant media and format to publish it.

WebQuest 5: Developing a Personal SRI Portfolio

Description:	Workload:
The "Developing a Personal SRI Portfolio" WebQuest guides participants in creating a personalised Socially Responsible Investing (SRI) portfolio. Participants learn to	3 hours

align their investment choices with personal values by integrating environmental, social, and governance (ESG) criteria into financial decision-making. The task involves researching companies' ESG performance, assessing financial returns, and constructing a diversified investment portfolio that reflects both ethical considerations and financial objectives. This exercise enhances understanding of sustainable finance principles and equips learners with practical skills to make informed, responsible investment decisions.		
Objectives (2 or 3, 20-40 words per objective): 1. Understand the principles of Socially Responsible Investing (SRI) and its relevance in today's financial landscape. 2. Analyse and assess investment options based on ethical, social, and environmental criteria. 3. Design a personal investment portfolio that aligns with individual sustainability values and financial goals.		
Learning Outcomes		
Knowledge	Skills	Responsibility & Autonomy
Core principles of Socially Responsible Investing (SRI). The importance of Environmental, Social, and Governance (ESG) criteria in evaluating investments. Different strategies within SRI, including negative screening, positive screening, and impact investing. Asset classes and how they can be incorporated into an SRI portfolio.	Conduct thorough research on SRI principles and potential investments. Evaluate investments based on their ESG performance, using criteria such as environmental sustainability, social initiatives, and governance practices. Assess client risk tolerance and financial goals. Develop a balanced and diversified investment portfolio that aligns with SRI principles.	Take responsibility for developing an ethical investment portfolio that aligns with a client's values and objectives. Independence in decision-making and portfolio management, ensuring alignment with both financial goals and ethical standards. Lead initiatives to promote sustainable finance and responsible investing practices.

Main activities/tasks:

This WebQuest could be executed individually not in teams. Each learner has to step into the shoes of a financial advisor specialising in sustainable investments. They are tasked to develop a socially responsible investment (SRI) portfolio for a client, including min. 5 diversified investments in different assets. The SRI portfolio has to be presented by the learner in a comprehensive report providing justification of the investment choices in line with SRI and ESG principles.

The process is structured in a logical and easy-to-follow manner leading to the completion of the task. The specific steps are:

- Research SRI Principles and Importance – learners are guided to form their own understanding of the SRI principles.
- Familiarize yourself with Environmental, Social, and Governance (ESG) criteria - learners are guided to form their own understanding of the ESG criteria.
- Assess Client's Investment Goals and Risk Tolerance – students have to research what investment goals are and set such as well to form an understanding of what risk is in investing and what are its determinants. Learners have to understand the risk tolerance of their client in order to be able to integrate it when building the SRI portfolio.
- Identify Potential Investments – at this stage each learner has to screen potential investments for their client's SRI portfolio.
- Evaluate Investments Using ESG Criteria – they have to evaluate each potential investment against defined ESG criteria.
- Develop the Portfolio – they have to build the portfolio with min. 5 investments in diversified assets.
- For each investment in the portfolio, provide a detailed rationale explaining why it was chosen – learners have to justify each investment in a report that should be presented to the client.
- Present the Portfolio to your client – in the role of the client could be the class, a peer or even the trainer. It's recommendable to set a time limit for each of the students to present their report to they learn to comply with timings and work under pressure. It's advisable to ask each learner 1-2 questions in order to make them critically reflect on more important parts of the training material.

Key resources:

The resources provided for this WebQuest are grouped thematically to orientate learners faster, as follows:

- Research and learning – these resources aim to provide information regarding the key terms explained in the WebQuest.

- Understanding ESG Criteria – these resources are leading to official website of UN Principles for Responsible Investment (PRI), Global Reporting Initiative (GRI) Standards and others aimed to support learners in understanding what is ESG and how it is connected to responsible investing.
- Assess Investment Goals and Risk Tolerance – these resources are more practically oriented and represent tools, questionnaires and guides aimed to support learners in evaluating risk tolerance and investments goals.
- Identify and Evaluate Investments – this section provides practically-oriented resources like Yahoo finance where learners can track and understand the return of their investments.

Final remarks/hints for trainers:

The trainer's role in this WebQuest is to guide and support the learning process, inspire motivation, and ensure that all participants thoroughly understand the content and tasks. To achieve this, the trainer can offer valuable tips, such as posing thought-provoking guiding questions or encouraging trainees to explore additional resources beyond those provided.

For the different stages some guiding questions could be:

1. Research SRI Principles and Importance
    - What does SRI stand for? What are the key principles?
    - Can you give examples of SRI?
2. Familiarize yourself with Environmental, Social, and Governance (ESG) criteria
    - What does ESG stand for?
    - How are ESG and SRI connected?
3. Assess Client's Investment Goals and Risk Tolerance
    - How do we measure risk in investments? What defines it?
    - What is risk tolerance in investments?
4. Identify Potential Investments
    - What are you going to look for when choosing a potential investment?
5. Evaluate Investments Using ESG Criteria
    - Remind learners to check environmental policies, reports and commitments; governance practices and social initiatives/ report that the company engages in.
    - For Step 6 "Develop the Portfolio"; 7 "For each investment in the portfolio, provide a detailed rationale explaining why it was chosen"; and 8 "Present the Portfolio to your client" encourage learners to be concise

	and to the point in justifying the investments. Remind them not to forget how each investment aligns with the ESG criteria.

Relation to the Sustainable Learning Experience & Relation to other topics

Relation to sustainable learning experiences

Sustainable finance plays a crucial role in shaping educational experiences that prepare future professionals to navigate financial decision-making while considering sustainability impacts. A Sustainable Learning Experience (SLE) integrates economic, social, and environmental dimensions into teaching, ensuring that students develop:

- Systems Thinking – Understanding financial systems as part of larger sustainability networks.
- Interdisciplinary Knowledge – Connecting finance with environmental science, ethics, and business management.
- Practical Application – Engaging students with real-world financial models such as green bonds, ESG investing, and circular economy financing (Sterling, 2011).

A sustainable learning framework encourages active problem-solving, preparing students to address sustainability challenges through responsible financial decisions (Wiek et al., 2011).

Relation to other topics

Sustainable Finance and ESG Principles

Environmental, Social, and Governance (ESG) principles are at the core of sustainable finance. Financial markets increasingly integrate ESG criteria into investment decisions to align economic activities with long-term sustainability goals (Friede et al., 2015).

Connections between ESG and Sustainable Finance:

- Environmental (E) – Finance for climate action, renewable energy, and biodiversity protection (OECD, 2020).
- Social (S) – Investments in fair labour practices, diversity, and social impact projects (UNPRI, 2021).

- Governance (G) – Corporate responsibility in ethical business practices, transparency, and regulatory compliance (World Bank, 2020).

ESG-aligned investments reduce **long-term financial risks** by considering climate change, regulatory shifts, and societal expectations.

Sustainable Finance and Sustainable Supply Chains

Sustainable finance supports and funds the transformation of global supply chains towards more ethical and environmentally responsible models.

Key Intersections:

- Green Supply Chain Financing – Providing financial incentives for companies to adopt low-carbon logistics, renewable energy, and sustainable raw materials (OECD, 2020).
- Socially Responsible Sourcing – Investments in fair trade, ethical labor practices, and supplier sustainability assessments (World Economic Forum, 2021).
- Risk Mitigation – Financial strategies to prevent supply chain disruptions due to climate risks, human rights violations, or regulatory non-compliance (UN Global Compact, 2022).

By aligning with ESG investment principles, sustainable finance ensures capital is directed towards ethical and resilient supply chains (European Commission, 2021).

Circular Economy Business Models and Sustainable Finance

The circular economy promotes a shift from linear production ("take-make-dispose") to a regenerative economic model focused on waste reduction, resource efficiency, and closed-loop systems (Ellen MacArthur Foundation, 2019). Sustainable finance enables this transition by funding businesses that integrate circular principles into their models.

How Sustainable Finance Supports Circular Economy Models:

- Green Bonds & Impact Investment Funds – Financing eco-friendly innovations, recycling infrastructures, and circular product designs (OECD, 2020).
- Product-as-a-Service (PaaS) & Leasing Models – Investing in businesses that sell services instead of ownership (e.g., car-sharing, furniture rental) to reduce material waste (Ellen MacArthur Foundation, 2019).

- Industrial Symbiosis & Closed-Loop Supply Chains – Funding projects that reuse by-products and repurpose waste materials (European Investment Bank, 2021).

The financial sector plays a crucial role in scaling circular economy solutions by directing investments towards resource-efficient and climate-resilient business models (World Bank, 2020).

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4.4. Topic 4: CE Business models

What is it?

Circular Economy (CE) business models represent a shift from the traditional linear economy (take-make-dispose) to a regenerative and restorative approach. These models are designed to maximize resource efficiency, minimize waste, and extend the lifecycle of products and materials. Unlike conventional business models that rely on continuous consumption and disposal, CE business models focus on sustainability through strategies like product-as-a-service, sharing platforms, refurbishment, remanufacturing, and closed-loop recycling systems.

A CE business model is not simply about recycling; rather, it encompasses a broader spectrum of activities aimed at designing out waste and pollution, keeping

products and materials in use, and regenerating natural systems. Examples of CE business models include:

- **Product-as-a-Service (PaaS):** Companies provide access to a product instead of selling it outright (e.g., Philips' pay-per-lux lighting solutions).
- **Sharing Economy Models:** Platforms that enable peer-to-peer sharing of goods and services (e.g., Airbnb, Uber, and clothing rental services).
- **Refurbishment and Remanufacturing:** Extending product life through repair, upgrading, or reconditioning (e.g., Fairphone, Caterpillar's remanufactured engines).
- **Closed-Loop Recycling:** Ensuring materials are continuously repurposed without loss of quality (e.g., Patagonia's textile recycling program).

What CE business models are *not* about:

- They are not merely about corporate social responsibility (CSR) initiatives; rather, they are fundamental shifts in business strategy.
- They do not solely focus on end-of-life waste management but integrate circular principles at the design stage.
- They are not a one-size-fits-all solution; successful implementation depends on industry-specific factors and supply chain dynamics.

Why is it important?

The importance of Circular Economy business models is increasingly recognized due to pressing global challenges such as resource depletion, environmental degradation, and climate change. Adopting these models presents significant economic, environmental, and social benefits.

Economic Benefits:

- A CE approach can generate up to €1.8 trillion in economic benefits by 2030 in Europe alone, according to the Ellen MacArthur Foundation.
- Businesses adopting circular models can reduce material costs by up to 90%, improving profitability and resilience against resource price volatility.
- Circularity fosters innovation, leading to new business opportunities and job creation, particularly in sectors like remanufacturing and digital services.

Environmental Benefits:

- CE models help reduce carbon emissions by minimizing waste and lowering the demand for virgin raw materials. The World Economic Forum estimates

that transitioning to a circular economy could cut global greenhouse gas emissions by 39%.

- Waste reduction is a key advantage—only 9% of the global economy is currently circular, meaning vast amounts of resources are lost rather than reintegrated into the economy.
- By designing out pollution and waste, CE business models support biodiversity conservation and reduce the strain on natural ecosystems.

Social and Regulatory Importance:

- Consumer awareness and demand for sustainable products are rising, with 73% of global consumers willing to change their consumption habits to reduce environmental impact (Nielsen, 2021).
- Governments and regulatory bodies are implementing stricter policies to drive circularity, such as the EU Circular Economy Action Plan, which mandates sustainable product design and extended producer responsibility.
- CE business models contribute to the United Nations Sustainable Development Goals (SDGs), particularly SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action).

In conclusion, Circular Economy business models are not just an environmental necessity but a strategic imperative for businesses aiming for long-term resilience and competitiveness. By integrating circular principles, businesses can drive innovation, reduce risks, and contribute to a more sustainable and equitable global economy.

The WebQuests for CE Business Models

WebQuest 1: Envisioning a Sustainable Future; Transitioning to a Circular Economy

Description	Workload: 8-12 hours
This WebQuest introduces learners to the circular economy (CE) and its role in sustainability. The traditional linear economy follows a "take-make-dispose" model, which leads to resource depletion and environmental degradation. The circular economy, in contrast, aims to keep materials in use for as long as possible, reduce waste, and create regenerative systems. Through this WebQuest, students will explore real-world case studies of circular business models in industries such	

<table>
<tr><td colspan="2">as fashion, electronics, and construction. They will compare circular and linear economic models, assess the benefits of a transition to circularity, and discuss the challenges companies face when implementing these strategies.

By engaging in research, analysis, and group discussions, learners will develop a foundational understanding of CE and its applications. They will also critically evaluate the role of policy, business innovation, and consumer behaviour in advancing circular solutions.</td><td rowspan="2"></td></tr>
<tr><td colspan="2">Objectives:

● By completing this WebQuest, students will:
● Understand the principles of the circular economy and how it differs from the linear economy.
● Analyze case studies to identify how businesses implement circular strategies.
● Assess the environmental and economic impacts of circular models in different industries.
● Develop critical thinking and problem-solving skills in relation to sustainable business practices.
● Improve research and teamwork skills by collaborating on case study presentations</td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Understand the core principles of the circular economy (CE) and its key differences from the traditional linear economy.

Recognize key strategies within the CE, such as reduce, reuse, recycle, and regeneration, and how they contribute to sustainability.

Identify and analyse real-world circular business models, understanding how companies</td><td>Develop critical thinking and problem-solving skills by evaluating the feasibility of circular strategies in different industries.

Enhance research and analytical skills by gathering and assessing case studies of businesses implementing CE practices.

Improve communication and teamwork through</td><td>Foster a sustainability mindset, encouraging students to consider the long-term impact of production and consumption.

Develop an awareness of the role of consumers and businesses in accelerating the transition to a circular economy.</td></tr>
</table>

integrate circularity into their operations. Evaluate the environmental, economic, and social impacts of transitioning from a linear to a circular economy.	group discussions, comparative analysis, and collaborative presentations. Apply theoretical knowledge to practical case studies, making connections between sustainability theory and business innovation.	Encourage proactive engagement in sustainability initiatives, inspiring learners to implement circular economy ideas in their personal and professional lives.

Main activities/tasks:

Step 1: Research the Circular Economy Concept

- Read reports from Ellen MacArthur Foundation, EU Circular Economy Action Plan, and UN Sustainable Development Goals (SDGs).
- Watch educational videos and infographics explaining CE principles.
- Answer guiding questions: Why is circularity important? How does it reduce waste and resource use?

Step 2: Compare Circular vs. Linear Economy

- Create a comparison chart outlining key differences in waste management, resource use, and business strategies.
- Discuss in small groups: What industries would benefit most from adopting CE?

Step 3: Case Study Analysis

- Research a real-world company that applies circular economy strategies (e.g., Patagonia, IKEA, Philips, or Interface).
- Identify how the company reduces waste, extends product life, and reuses materials.
- Summarize findings in a short report.

Step 4: Group Presentation

- Present findings on how CE is implemented in different industries.
- Compare different case studies and discuss scalability, challenges, and business benefits.

Key resources:

- Ellen MacArthur Foundation CE reports

  Transitioning to a circular economy business | Report

- UN Sustainable Development Goals (SDGs) guidelines

  https://www.un.org/sustainabledevelopment/wp-content/uploads/2023/09/E_SDG_Guidelines_Sep20238.pdf

- Academic papers and industry reports on circular business strategies

  Academic papers and industry reports on circular... - Google Scholar

- Online webinars and expert talks on sustainability and CE

  EU Circular Talks | European Circular Economy Stakeholder Platform

Final remarks/hints for trainers:

- Encourage active learning by assigning different industries to research (fashion, tech, food).
- Use multimedia (videos, case studies, infographics) to engage students.
- Guide discussions with questions like:
  - What circular business models work best in certain industries?
  - What policies support the transition to CE?
- Incorporate real-world examples by inviting guest speakers from businesses that apply CE strategies.
- Facilitate a debate: Should governments enforce CE policies, or should businesses drive change?

Trainers should encourage an interdisciplinary approach, integrating business strategy, environmental science, and policy frameworks. Facilitators should highlight the importance of stakeholder engagement by organizing guest talks or site visits to circular businesses. Assigning case study comparisons across industries (e.g., fashion vs. electronics) will provide broader insights. Lastly, trainers should emphasize systems thinking, helping learners understand the interconnections between business, policy, and consumer behaviour in driving circular economy transitions.

WebQuest 2: When Design and Creativity Meet the Planet and the Environment

Description:	Workload: 8-12 hours
This WebQuest delves into how companies integrate eco-design principles and life cycle thinking into their circular business models to enhance environmental sustainability. Traditional linear business models follow a "take-make-dispose" approach, leading to significant environmental	

impacts. In contrast, circular business models aim to minimize waste, extend product life cycles, and optimize resource efficiency by considering the entire life cycle of products from material extraction to end-of-life disposal or recycling.

Students will examine various circular business models that incorporate eco-design strategies, such as:

- Product-as-a-Service (PaaS): Companies offer products through leasing or subscription models, retaining ownership to ensure proper end-of-life management and resource recovery.
- Closed-loop supply chains: Businesses design products for easy disassembly and recycling, enabling materials to be reused in new products, thereby reducing the need for virgin resources.
- Industrial symbiosis: Companies collaborate to use each other's by-products or waste materials as inputs, reducing overall environmental impact.

By the end of this WebQuest, students will understand how integrating eco-design and life cycle thinking into circular business models can lead to reduced environmental impacts and more sustainable economic practices.

Objectives:

1. Identify and explain circular business models that incorporate eco-design and life cycle thinking, understanding their benefits and challenges.
2. Examine how businesses implement circular strategies, including waste reduction, resource efficiency, and extended product lifecycles, using real-world case studies.
3. Analyse the impact of circular business models on sustainability, discussing economic feasibility, customer perception, and potential regulatory barriers.

Learning Outcomes

Knowledge	Skills	Responsibility & Autonomy
Understand the integration of eco-design principles in various	Develop research and analytical skills by	

circular business models across different industries. Analyse real-world case studies of businesses that have successfully implemented circular models with a focus on life cycle sustainability. Assess the environmental, economic, and social impacts of these models, considering the entire product life cycle. Identify challenges and opportunities for businesses transitioning from linear to circular approaches, emphasizing eco-design strategies.	examining case studies of circular business models. Enhance communication and teamwork skills through collaborative presentations and group discussions. Improve problem-solving skills by evaluating barriers to adopting circular business models and proposing viable solutions. Apply critical thinking to assess the scalability and feasibility of circular business models in different industry sectors.	Foster an ethical and sustainable mindset by recognizing the importance of eco-design and responsible production. Encourage proactive engagement in sustainability initiatives, both in academic and professional contexts. Promote independent learning and accountability by researching circular economy principles and advocating for their adoption in real-world applications. Develop leadership skills by facilitating discussions and guiding group work in evaluating circular business strategies.

Main activities/tasks:

Step 1: Research Circular Business Models and Eco-Design

- Read reports from the Ellen MacArthur Foundation, UN Environment Program, and World Economic Forum on circular business models and eco-design principles.
- Watch case study videos on companies applying circular economy principles with a focus on life cycle sustainability.
- Discuss in groups: Which business models seem most viable? How does eco-design contribute to their success?

Step 2: Case Study Selection and Analysis

- Each student/group selects a real-world circular business model that integrates eco-design strategies (e.g., IKEA's furniture take-back program, Patagonia's Worn Wear, or Rolls-Royce's jet engine leasing).
- Research the company's business strategy, sustainability impact, and challenges faced, focusing on life cycle considerations.

- Identify key insights: What makes the model successful? What barriers exist? How does eco-design enhance sustainability?

Step 3: Comparative Analysis of Circular vs. Linear Models

- Create a comparison table of circular vs. linear business models, highlighting the role of eco-design and life cycle thinking.
- Discuss: Why haven't all companies transitioned to circular models? What are the economic and logistical barriers? How can eco-design facilitate this transition?

Step 4: Group Presentation and Debate

- Prepare a 5-minute presentation summarizing the chosen case study, emphasizing eco-design and life cycle aspects.
- Participate in a class debate: Are circular business models with integrated eco-design the future of global industries?

Key resources:

- Reports on eco-design and biomimicry (e.g., Ellen MacArthur Foundation, Biomimicry Institute)

  Schools of thought that inspired the circular economy
- Case studies on sustainable product design

  15 Sustainable Manufacturing Examples and Case Studies
- Online sustainable design tools and resources

  Sustainable Design Toolkits And Frameworks — Smashing Magazine

Final remarks/hints for trainers:

Provide diverse case studies covering different industries (fashion, electronics, manufacturing, etc.) to ensure broad understanding of eco-design applications.

Use engaging multimedia resources, including interactive simulations, TED Talks, and company reports, focusing on life cycle sustainability.

Guide research with key questions, such as:

- How does the circular model benefit both businesses and the environment through eco-design?
- What are the major challenges in implementing circular business strategies?
- How can companies persuade consumers to embrace circularity?

Encourage students to think critically about scalability: Can these models be applied to large multinational corporations?

Highlight policy and financial incentives that encourage businesses to transition to circularity (e.g., EU Green Deal, extended producer responsibility).

Facilitate a group discussion on consumer behaviour: How do customer preferences impact the adoption of circular models?

Trainers should emphasize the role of creativity in sustainability, encouraging participants to think outside conventional solutions. Showcasing real-world innovations will inspire learners and demonstrate the feasibility of sustainable design practices. Encouraging collaboration between participants from diverse backgrounds (e.g., design, business, environmental sciences) will enhance problem-solving and creativity. Finally, trainers should foster an iterative approach, where participants refine their ideas through feedback and reflection, simulating real-world design processes.

WebQuest 3: Sustainability in Action: Life-cycle Analysis and Closed-loop Supply Chains

Description:	Workload (hours): 8-12 hours
Environmental sustainability is a growing priority for businesses aiming to reduce their environmental footprint. This WebQuest explores Life-Cycle Analysis (LCA) and Closed-Loop Supply Chains (CLSC)—key tools for assessing sustainability and optimizing resource use. Participants will analyse how businesses track environmental impacts across a product's life cycle and design supply chains that promote material reuse and recycling. Through case studies and practical exercises, learners will explore real-world CLSC implementations in industries like electronics, automotive, and fashion, gaining insights into sustainable business strategies. Imagine you are part of a product development team designing a sustainable refrigerator. Your team must conduct an LCA to identify key environmental impacts, develop a CLSC strategy to enhance material recovery, and perform an Impact Evaluation to measure sustainability improvements.	

This WebQuest offers hands-on learning, equipping participants with critical problem-solving and analytical skills to drive sustainable innovation. By applying these concepts to a real-world challenge, learners will develop the expertise needed to contribute to circular economy solutions and sustainable supply chains.

Objectives:

1. Understand and apply Life-Cycle Analysis (LCA): Equip participants with the ability to evaluate environmental impacts at each stage of a product's life cycle, from raw material extraction to end-of-life disposal.
2. Examine the function and significance of Closed-Loop Supply Chains (CLSC): Provide insights into designing and managing supply chains that facilitate continuous material recovery and waste minimization.
3. Propose strategies for enhancing resource efficiency: Enable learners to develop actionable plans that improve sustainability in business operations, considering economic feasibility and environmental impact.

Learning Outcomes

Knowledge	Skills	Responsibility & Autonomy
Comprehend the principles and methodologies of Life-Cycle Analysis (LCA) and their application in sustainability assessments. Understand the structure and benefits of Closed-Loop Supply Chains (CLSC) in promoting circular economy practices. Recognize material recovery strategies and their role in reducing environmental footprints.	Develop proficiency in conducting LCAs to identify environmental impacts and improvement opportunities. Enhance data analysis capabilities to interpret sustainability metrics effectively. Strengthen problem-solving skills to address challenges in	Demonstrate the ability to critically assess and optimize supply chain operations for sustainability. Exhibit autonomy in researching and applying LCA and CLSC concepts to diverse scenarios. Showcase leadership in advocating for and implementing sustainable practices within organizations.

	implementing CLSC models. Cultivate strategic thinking to propose viable solutions for resource efficiency.	

Main activities/tasks:

Conducting a Life-Cycle Analysis:

- Activity: Participants will select a product (e.g., smartphone, clothing item, household appliance) and perform a comprehensive LCA.
- Process: Analyse each stage—material sourcing, production, usage, and disposal—to identify environmental impacts.
- Outcome: Develop a detailed report highlighting key impact areas and suggesting mitigation strategies.

Case Study Analysis:

- Activity: Examine successful CLSC implementations, such as Renault's remanufacturing program, Dell's electronic recycling initiatives, or Adidas' closed-loop footwear solutions.
- Process: Investigate the strategies employed, challenges faced, and outcomes achieved in these cases.
- Outcome: Present findings that distil best practices and lessons learned.

Supply Chain Mapping Exercise:

- Activity: In groups, create a visual map of a closed-loop supply chain for a selected product.
- Process: Identify points for material recovery, recycling loops, and waste reduction opportunities.
- Outcome: Produce a comprehensive supply chain diagram with annotations on sustainability interventions.

Developing Circular Supply Chain Strategies:

- Activity: Based on previous analyses, propose enhancements to existing supply chains.
- Process: Consider factors such as economic feasibility, logistical challenges, and environmental benefits.
- Outcome: Draft a strategic plan outlining recommended changes and their anticipated impact.

Stakeholder Perspective Role-Play:

- Activity: Engage in role-play sessions, assuming positions like supply chain managers, policymakers, and sustainability consultants.
- Process: Debate the challenges and advantages of implementing CLSC from various stakeholder viewpoints.
- Outcome: Gain a multifaceted understanding of the complexities in adopting sustainable supply chains.

Presentation & Reflection:

- Activity: Present group findings and strategies to peers and facilitators.
- Process: Utilize visual aids and data to support arguments, followed by a reflective discussion.
- Outcome: Receive feedback and engage in discourse to refine understanding and approaches.

Key resources:

- Industry reports and publications on LCA and CLSC methodologies.

  Life Cycle Assessment (LCA) – Everything you need to know | Ecochain

- Case studies detailing successful implementations of closed-loop systems.

  Case studies detailing successful implementations... - Google Scholar

- Frameworks and tools for sustainability assessment and supply chain optimization
- Frameworks and tools for sustainability assessment... - Google Scholar

Final remarks/hints for trainers:

Emphasize Data-Driven Decision Making: Encourage participants to base their analyses and proposals on quantitative data to ensure credibility and accuracy.

Facilitate Hands-On Activities: Incorporate practical exercises like LCA computations and supply chain mapping to reinforce theoretical concepts.

Discuss Real-World Challenges: Address practical barriers to implementing CLSC, such as logistical constraints and stakeholder resistance, to prepare learners for actual scenarios.

Engage with Industry Experts: Organize sessions with professionals experienced in sustainable supply chain

Trainers should emphasize the importance of data-driven decision-making in sustainability. Encouraging hands-on activities like LCA exercises and supply chain mapping will deepen understanding. Facilitating discussions on real-world challenges—

such as logistical barriers to closed-loop systems—will help learners grasp the complexities of implementation. Collaboration with industry experts, through guest lectures or virtual Q&A sessions, can provide valuable insights into sustainable supply chain management. Finally, trainers should foster critical thinking by prompting learners to question existing supply chain models and explore innovative solutions for a more circular economy.

WebQuest 4: From Fast to Last, Reinventing Fashion for the Future

<table>
<tr><td>Description:

The fashion industry has a profound impact on the environment, contributing to resource depletion, pollution, and excessive waste through the fast fashion model. This WebQuest challenges participants to explore how the transition from fast fashion to slow fashion can create a more sustainable future. By engaging in research, business model analysis, and practical design, learners will assess the environmental impact of fashion, identify successful slow fashion business models, and propose strategies for transforming fast fashion brands into more sustainable enterprises.

Participants will take on the role of sustainability consultants and work in teams to analyse the business model of a well-known fast fashion company. Through case studies, interviews, and business model development, they will create an action plan to redesign a fast fashion company’s operations using slow fashion principles, such as ethical production, circular economy strategies, and waste reduction.

At the end of this WebQuest, participants will pitch their solutions to a panel, advocating for a sustainable shift in the fashion industry.</td><td rowspan="2">Workload: 8-12 hours</td></tr>
<tr><td>Objectives:

1. Understand the principles of fast and slow fashion and their environmental and social impacts.

2. Analyse business models of fast fashion companies and identify areas for transformation.

3. Develop an action plan that reengineers a fast fashion business model into a slow fashion one.</td></tr>
</table>

<table>
<tr><td colspan="2">4. Enhance communication, teamwork, and presentation skills through consulting, research, and pitching solutions.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Advanced understanding of fast and slow fashion models.

Awareness of the environmental impact of the textile industry.

Understanding of circular economy and sustainable fashion strategies.</td><td>Research and analytical skills in assessing fashion business models.

Business planning skills, including using the Business Model Canvas.

Communication skills gained through conducting interviews and pitching ideas.

Digital skills in using Miro, PowerPoint, Prezi, or Canva to create engaging presentations.

Critical thinking through evaluating and refining sustainability strategies.</td><td>Ability to independently analyse a company’s business model.

Capability to develop and justify sustainability actions.

Confidence in advocating for sustainability solutions within business contexts.</td></tr>
<tr><td colspan="3">Main activities/tasks:

1. Assemble Your Sustainability Consulting Team

● Form a team of 3-4 members who will act as sustainability consultants.

2. Choose and Analyse a Fast Fashion Brand

● Select a major fast fashion brand such as H&M, Zara, Shein, Forever21, or Primark.
● Conduct research on their business model, including supply chain, production, marketing, and sales strategies.

3. Conduct Research on Fast vs. Slow Fashion

● Review resources from Ellen MacArthur Foundation, McKinsey & Company, and sustainable fashion reports.</td></tr>
</table>

- Identify best practices from sustainable fashion brands (e.g., Patagonia, TenTree).
- Discuss: What makes fast fashion unsustainable? How can businesses transition to slow fashion?

4. Develop the Fast Fashion Business Model Canvas

- Use the Business Model Canvas (Miro template) to outline your chosen brand's current fast fashion model.
- Define key elements such as partners, resources, customer segments, and revenue streams.

5. Conduct Consumer Research (Living Lab Activity)

- Interview at least 5 customers of the brand.
- Develop a structured questionnaire to assess:
    - Awareness of fast fashion's environmental impact.
    - Reasons customers prefer fast fashion brands.
    - Willingness to support sustainable fashion alternatives.

6. Design a Slow Fashion Transition Plan

- Redesign the business model using slow fashion principles.
- Propose actions in the 9 key areas of the Business Model Canvas, including:
    - Sustainable materials
    - Ethical production
    - Circular economy strategies (recycling, resale, repair services)
    - Consumer engagement & transparency
- Justify each proposed change and its environmental benefits.

7. Present Your Transition Plan

- Create a 10–15-minute pitch for your client's management board.
- Use PowerPoint, Prezi, Canva, or video to present findings.
- Explain why your slow fashion strategy is viable and beneficial.

8. Peer Review & Voting

- Each team presents their slow fashion transition plan.
- Other teams act as a jury, evaluating and selecting the best sustainability proposal.
- The winning team is recognized as the Best Sustainability Consultants for Fashion.

Key resources:

Ellen MacArthur Foundation reports on circular fashion.

Fashion and a circular economy | Ellen MacArthur Foundation

Company articles on sustainable business models.

Company articles on sustainable business models. - Google Scholar

Case studies on brands like Patagonia, TenTree, and Stella McCartney.

Case Studies of Socially Responsible Fashion Brands

Business Model Canvas templates (Miro, Canva, or printed versions).

How do you use a business model canvas to visualize your business plan?

Documentaries: The True Cost, Minimalism: A Documentary About the Important Things.

MINIMALISM: Official Netflix Documentary (Entire Film)

Final remarks/hints for trainers:

- Encourage creative and strategic thinking beyond recycling to upcycling, ethical sourcing, and circular business models.
- Guide teams in structuring their business model analysis and transition strategy.
- Foster discussions on how consumers, businesses, and policymakers contribute to sustainable fashion.
- Provide examples of policy incentives and economic benefits of slow fashion transitions.
- Ensure teams use engaging presentation techniques to communicate their ideas effectively.

Trainers should guide learners through a structured approach to sustainable fashion, emphasizing both economic viability and environmental impact. Encouraging participants to think beyond recycling—towards upcycling, industrial symbiosis, and bioeconomy solutions—will foster creative problem-solving. By the end of this WebQuest, participants will have practical knowledge of sustainable fashion, improved

business strategy skills, and a greater awareness of their role in transforming the fashion industry toward a more ethical and circular future.

WebQuest 5: Circular Horizons - Exploring Sustainable Business Models

Description: As businesses seek sustainable solutions, adopting circular economy principles has become crucial. Traditional linear business models, based on a take-make-dispose approach, are no longer viable in a world where resource scarcity and environmental concerns are at the forefront of economic challenges. Instead, businesses are exploring circular economy models to maximize resource efficiency, reduce waste, and foster sustainable growth. This WebQuest introduces participants to a variety of circular economy business models, such as product-as-a-service, sharing platforms, and remanufacturing. Participants will engage in research, real-world case studies, stakeholder interactions, and hands-on activities to explore how these models can enhance sustainability, drive innovation, and create economic opportunities. Participants will take on the role of sustainability consultants, analysing existing business models and proposing circular economy solutions for a selected sector. This includes stakeholder engagement, data analysis, and strategic planning to develop a comprehensive approach to circular business practices. Through critical evaluation, participants will assess the feasibility, advantages, and challenges associated with implementing circular strategies. By the end of the WebQuest, participants will not only have developed in-depth knowledge of circular economy principles but will also have practical experience in applying these principles to real-world business scenarios, fostering both analytical and creative problem-solving skills.	Workload: 8-12 hours
Objectives: 1. Understand and apply circular economy principles in various industries.	

<table>
<tr><td colspan="2">2. Analyse different circular economy business models and assess their sustainability potential.
3. Evaluate opportunities and challenges of implementing circular strategies.
4. Develop a detailed action plan for a chosen industry or company, outlining realistic and scalable circular practices.
5. Enhance presentation, teamwork, and communication skills through interactive exercises and stakeholder engagement.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Comprehensive understanding of circular economy business models and their real-world applications.

Awareness of sustainability benefits in circular supply chains and resource management.

Insights into economic, environmental, and societal impacts of circular business models.

Familiarity with policy frameworks and regulatory trends influencing circular economy transitions.</td><td>Ability to analyse and evaluate circular economy models in terms of feasibility and impact.

Critical thinking and strategic planning for sustainable business models.

Research and data analysis skills in identifying key circular economy trends.

Effective communication in presenting sustainability proposals.

Hands-on experience in business model transformation and stakeholder collaboration</td><td>Taking responsibility for promoting circular economy principles in business decision-making.

Exercising autonomy in proposing innovative solutions for business transformation.

Advocating for sustainable business practices through well-supported recommendations and evidence-based decision-making.</td></tr>
<tr><td colspan="3">Main activities/tasks:

1. Introduction to Circular Economy Concepts

● Visit university sustainability offices or local businesses to explore real-world circular practices.

● Discuss the importance of circular economy models in reducing waste, enhancing sustainability, and promoting economic resilience.</td></tr>
</table>

2. Research on Circular Economy Business Models

- Use academic articles, industry reports, and case studies to investigate circular business models.
- Focus on product-as-a-service, sharing platforms, remanufacturing, closed-loop supply chains, and industrial symbiosis.
- Identify successful companies applying circular economy principles, such as Interface's Mission Zero.

3. Case Study and Stakeholder Engagement

- Engage with businesses that have implemented circular economy models and understand their success factors.
- Conduct interviews with local entrepreneurs, university sustainability officers, or business leaders to gain insights into real-world applications.
- Identify industry challenges and assess how circular business models address environmental and economic concerns.

4. Model Evaluation and Practical Simulations

- Assess advantages and disadvantages of different circular economy business models.
- Participate in role-playing exercises to simulate circular business operations and decision-making processes.
- Explore industry-specific implementation challenges and develop mitigation strategies.

5. Develop a Circular Economy Plan

- Choose an industry or sector (e.g., fashion, technology, manufacturing, food production).
- Create a step-by-step strategy to transition a company from a linear to a circular model.
- Address key elements:
    - Objectives: Waste reduction, resource efficiency, cost savings, and improved sustainability.
    - Proposed circular business model: Recycling, leasing models, industrial symbiosis, remanufacturing.

- Implementation plan: Timeline, stakeholders, risks, financial implications, and key performance indicators.
- Impact assessment: Economic, environmental, and social benefits, including lifecycle assessment analysis.

6. Presentation and Stakeholder Panel Discussion

- Prepare a PowerPoint, infographic, or video summarizing findings and proposals.
- Present a circular business model proposal to faculty members, business leaders, or sustainability experts.
- Engage in Q&A discussions to refine strategies and gather expert insights.

Key resources:

- Reports from the Ellen MacArthur Foundation and Accenture on circular business strategies

  The marketing playbook for a circular economy
- European Green Deal and Circular Economy Action Plan

  European Green Deal and Circular Economy Action Plan - Google Scholar
- McKinsey & Company sustainability reports

  2023 ESG Report: Sustainable & inclusive growth | McKinsey & Company
- Interface's Mission Zero case study

  Interface case study | The Natural Step Germany
- Animated video essays on Circular Economy Models

  What If We Don't Buy Products and We Buy Service? Circular Economy Explained | Animated Video Essay
- Circular business frameworks (Product-as-a-Service, Remanufacturing, Sharing Economy, Industrial Symbiosis)

  Hansen_Luedeke-Freund_Fichter_2020_WP_Circular_Business_Model_Typology.pdf
- EU Circular Economy Policy and Reports
- How the EU wants to achieve a circular economy by 2050 - EU monitor

Final remarks/hints for trainers:

- Encourage experiential learning through research, stakeholder engagement, and case study analysis.

- Promote collaborative teamwork in developing business strategies and problem-solving.
- Guide students in identifying real-world challenges and developing practical, scalable solutions.
- Support creative and engaging presentations, using data visualization to enhance impact.
- Facilitate discussions on policy incentives, economic viability, and future trends in circular economy business models.

Trainers should encourage learners to think critically about the scalability and real-world application of circular business models. Emphasizing the role of collaboration, digital innovation, and systemic change will help participants grasp the broader impact of circularity. Trainers should also facilitate discussions on potential barriers such as regulatory challenges and consumer behavior shifts and how businesses can overcome them.

By completing this WebQuest, participants will gain valuable skills in sustainability consulting, business model transformation, and innovation, equipping them to become future leaders in the circular economy movement. They will not only understand the theoretical foundations of circular business models but will also have the ability to propose actionable strategies that companies can adopt to transition to a more sustainable future.

WebQuest 6: Designing a Zero Waste Campus

Description:	Workload: 8-12 hours
As the global movement toward sustainability accelerates, higher education institutions play a critical role in adopting and promoting zero waste practices. This WebQuest challenges participants to explore and implement the principles of a circular economy within their campus environment. By designing and proposing a zero waste strategy, learners will develop hands-on experience in waste reduction, recycling initiatives, and community engagement. Participants will take on the role of sustainability consultants, tasked with researching, evaluating, and designing a practical zero waste initiative for their institution. This project will incorporate stakeholder collaboration, data analysis, and strategic planning to ensure feasibility and effectiveness.	

<table>
<tr><td colspan="2">The WebQuest will culminate in a proposal presentation, where participants will pitch their zero waste action plan to university leadership, sustainability coordinators, and student organizations. This interactive learning experience will equip learners with real-world problem-solving skills applicable to sustainability efforts both within and beyond the academic environment.</td><td rowspan="2"></td></tr>
<tr><td colspan="2">Objectives:

1. Understand the principles of the circular economy and their application to zero waste initiatives.
2. Analyze and evaluate current waste management strategies in higher education institutions.
3. Develop a comprehensive zero waste action plan with practical and measurable outcomes.
4. Propose and advocate for sustainable waste reduction strategies through presentations and stakeholder engagement.
5. Enhance leadership, teamwork, and problem-solving skills by designing a campus-wide sustainability initiative.</td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Understanding of circular economy principles and their role in zero waste management.

Awareness of effective waste reduction and recycling programs.

Insight into the environmental, economic, and social benefits of zero waste initiatives.</td><td>Ability to analyse campus waste streams and identify opportunities for waste reduction.

Competence in developing actionable sustainability strategies.

Effective communication and engagement skills for mobilizing the campus community.

Data collection and analysis to evaluate</td><td>Taking responsibility for designing and implementing practical zero waste initiatives.

Leading by example and inspiring peers to adopt sustainable habits.

Engaging with campus stakeholders to drive sustainable change.</td></tr>
</table>

	waste reduction effectiveness.	

Main activities/tasks:

1. Understanding Circular Economy & Zero Waste Principles

- Visit the university's sustainability office to learn about existing waste management practices.
- Research zero waste campuses and best practices from leading institutions.
- Discuss: What are the key challenges to achieving zero waste on campus?

2. Campus Waste Audit & Data Collection

- Conduct a waste audit to assess current waste generation and disposal patterns.
- Identify major waste contributors and potential areas for waste reduction.
- Compare data with benchmark institutions that have successfully implemented zero waste initiatives.

3. Case Study Analysis & Stakeholder Engagement

- Study successful zero waste initiatives in universities worldwide.
- Interview faculty, students, and facility managers to understand their perspectives on waste management.
- Identify policy barriers and incentives that could impact implementation.

4. Developing a Zero Waste Campus Plan

- Choose one or more key areas for waste reduction (e.g., dining services, dormitories, events, or academic buildings).
- Define key action points:
    - Waste reduction goals (e.g., reducing single-use plastics, increasing composting efforts).
    - New waste management practices (e.g., reusable alternatives, enhanced recycling stations).
    - Education and awareness strategies (e.g., campus-wide campaigns, student-led initiatives).
    - Implementation timeline with milestones and measurable outcomes.
    - Stakeholder roles in executing the plan.

5. Presentation & Policy Advocacy

- Prepare a PowerPoint, video, or infographic to present your zero waste strategy.
- Deliver the proposal to a panel of campus sustainability officers, faculty, and student leaders.
- Engage in a discussion on implementation feasibility and receive expert feedback.

Key resources:

- Ellen MacArthur Foundation (Circular Economy reports and case studies)

  Case studies and examples of circular economy in action
- Campus Zero Waste Guides from global universities

  Home - Campus Race To Zero Waste
- European Green Deal and Circular Economy Action Plan

  Circular economy action plan - European Commission
- The True Cost of Waste Documentary

  youtube.com/watch?v=rwp0Bx0awoE
- World Economic Forum sustainability reports

  The World Economic Forum at Davos 2025 | McKinsey & Company
- Case studies of successful zero waste campuses

  Case Study Competition - Campus Race To Zero Waste

Final remarks/hints for trainers:

- Encourage hands-on research by conducting waste audits and analyzing campus-specific challenges.
- Facilitate discussions on economic and environmental benefits of zero waste.
- Support students in collaborating with university departments for real-world impact.
- Guide teams in creating compelling proposals with data-driven recommendations.
- Highlight policy frameworks and institutional incentives for long-term sustainability.

Trainers should emphasize the real-world applicability of designing a zero-waste campus, encouraging learners to think critically about policy implementation and stakeholder collaboration. Engaging students in experiential learning through fieldwork,

audits, and case studies will reinforce key concepts. Trainers can also highlight the role of behavioural change, institutional policies, and cross-sector partnerships in achieving long-term sustainability goals.

By completing this WebQuest, participants will develop actionable zero waste strategies, enhancing both their understanding of sustainable practices and their ability to drive meaningful change within academic institutions. This experience will prepare them to become leaders in sustainability and circular economy initiatives beyond the university setting.

WebQuest 7: Green Growth: Exploring Bioeconomy and Organic Resources

Description:	Workload: 8-12 hours
The bioeconomy is a transformative approach to sustainability, utilizing renewable biological resources to develop food, materials, and energy while reducing environmental impacts. In response to climate change and resource depletion, businesses, governments, and research institutions are increasingly exploring ways to integrate bio-based solutions into various industries. This WebQuest invites participants to engage in an immersive exploration of the bioeconomy, understanding the role of organic resources in fostering a sustainable and circular economy. Participants will analyse specific organic resources, assess their potential applications, and develop a strategic bioeconomy initiative to integrate these materials into real-world business models. Through stakeholder engagement, research, and creative design, participants will gain hands-on experience in bio-based solutions and their potential impact on environmental and economic sustainability. The final outcome will be a comprehensive proposal and multimedia presentation, where participants will showcase their findings, strategies, and sustainability evaluations to stakeholders and industry experts.	
Objectives: 1. Understand the core principles of the bioeconomy and its role in sustainability.	

<table>
<tr><td colspan="2">2. Analyse organic resources and their potential for bio-based product development.
3. Develop a strategic initiative for integrating bioeconomy practices into industries.
4. Evaluate economic and environmental benefits of bio-based processes and products.
5. Enhance communication, teamwork, and research skills through hands-on collaboration.</td><td></td></tr>
<tr><td colspan="3">Learning Outcomes</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Responsibility & Autonomy</td></tr>
<tr><td>Comprehensive understanding of bioeconomy principles and organic resource management.

Advanced knowledge of the economic and environmental impacts of bio-based innovations.

Insight into theories and frameworks guiding bio-based sustainable development.</td><td>Ability to analyse and develop strategies for integrating organic resources into the bioeconomy.

Competence in evaluating bio-based business models and sustainability assessments.

Proficiency in using digital tools to analyse and present bioeconomy projects.</td><td>Ability to analyse and develop strategies for integrating organic resources into the bioeconomy.

Competence in evaluating bio-based business models and sustainability assessments.

Proficiency in using digital tools to analyse and present bioeconomy projects.</td></tr>
<tr><td colspan="3">Main activities/tasks:

1. Introduction to Bioeconomy & Organic Resources

● Explore bioeconomy principles through case studies and industry reports.
● Discuss the importance of organic resources in sustainability.
● Visit university research centers or bioeconomy hubs for insights into real-world applications.

2. Selection of Organic Resources & Group Wiki Creation</td></tr>
</table>

- Each team selects an organic resource (e.g., agricultural waste, food byproducts, biomass).
- Create a collaborative Wiki to document research, findings, and progress.

3. Research & Infographic Creation

- Conduct a literature review on the selected resource.
- Use Canva or similar tools to create infographics visualizing key data.
- Publish findings on the Wiki for peer review.

4. Analysis of Bioeconomic Systems & Stakeholder Engagement

- Use Miro to map the bioeconomic system, including key actors and material flows.
- Conduct stakeholder interviews with businesses, policymakers, or researchers.
- Create a podcast (using Audacity) summarizing stakeholder insights.

5. Developing a Bioeconomy Strategy

- Based on research, propose a detailed strategy for integrating the organic resource.
- Consider factors such as scalability, feasibility, and market potential.
- Use the Carbon Footprint Calculator to assess environmental impact.

6. Economic & Environmental Evaluation

- Evaluate the economic viability of the proposed bio-based initiative.
- Calculate potential cost savings, carbon reduction, and sustainability metrics.
- Create an explanatory video summarizing findings.

7. Presentation & Feedback Session

- Organize an online event (via Zoom or Google Meet) to present final projects.
- Each team presents their Wikis, reports, and findings.
- Engage in peer review and constructive feedback discussions

Key resources:

- Reports and case studies on bioeconomy and circularity.

  (PDF) Circular Bioeconomy: Countries' Case Studies

- Scientific research on bio-based materials and sustainable resource management.

  (PDF) Bio-Based Materials Riding the Wave of Sustainability: Common Misconceptions, Opportunities, Challenges and the Way Forward

- Policy frameworks supporting bio-based industries.

  Bio-based products and processes - European Commission

- Innovation and entrepreneurship guides for bioeconomy startups.

  Innovation in the bioeconomy: Perspectives of entrepreneurs on relevant framework conditions - ScienceDirect

- Bioeconomy Knowledge Center (reports, case studies, and policies)

  Bioeconomy

- Canva (Infographic design tool for visualizing research)
- Using Canva Infographics to Make Your Research More Accessible to the Public
- Miro (Digital collaboration tool for bioeconomic system mapping)

  Miro | Lo spazio di lavoro per l'innovazione

- Carbon Footprint Calculator (Environmental impact assessment tool)

  Calculating Carbon Footprints | | ClimatePartner

Final remarks/hints for trainers:

- Encourage experiential learning by engaging with real-world bioeconomy projects.
- Guide students in designing practical, scalable bioeconomy solutions.
- Promote interdisciplinary collaboration by incorporating perspectives from economics, sustainability, and environmental sciences.
- Support teams in creating high-impact presentations using digital tools and multimedia content.
- Highlight policy incentives and market trends influencing the future of bioeconomy.

Trainers should encourage a multidisciplinary approach, integrating elements of biology, economics, and sustainability science. Emphasizing real-world applications and fostering creativity in business idea generation will enhance engagement. Trainers may also incorporate guest speakers from bioeconomy sectors or industry visits to bio-based companies for practical insights. By framing the bioeconomy within a broader circular

economy strategy, learners will gain a more comprehensive understanding of sustainability-driven economic models.

By completing this WebQuest, participants will gain hands-on expertise in bio-based innovations, strategic planning, and sustainability leadership. This project equips learners with the skills needed to drive forward-thinking solutions in the transition towards a bio-based and circular economy.

Relation to the Sustainable Learning Experience & Relation to other topics

Relation to Sustainable Learning Experiences

The integration of Circular Economy business models within the Sustainable Learning Experience (SLE) fosters a practical, problem-solving mindset among learners. By engaging with real-world case studies, business scenarios, and innovation-driven challenges, students develop a deeper understanding of sustainability's role in business transformation. These WebQuests encourage interdisciplinary learning, combining principles of economics, environmental science, and social responsibility. Through hands-on activities, learners apply theoretical knowledge to develop tangible solutions, preparing them for sustainability-driven careers.

Moreover, the SLE approach emphasizes experiential and inquiry-based learning, promoting skills such as critical thinking, collaboration, and systems thinking. Students learn to navigate complexity by assessing the feasibility of circular business strategies and developing innovative solutions for sustainability challenges. This educational approach aligns with the principles of lifelong learning, ensuring students are equipped with the competencies necessary for addressing global sustainability issues in various sectors.

Relation to Other Topics

Circular Economy and Sustainable Development Goals

The Circular Economy is closely linked to several Sustainable Development Goals (SDGs), particularly SDG 12 (Responsible Consumption and Production), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 13 (Climate Action). By focusing on sustainable business practices, resource efficiency, and waste reduction, Circular Economy business models support the achievement of these goals.

Learners explore how adopting circularity in businesses contributes to global sustainability agendas and corporate ESG strategies.

Circular Economy and Digitalization

Digitalization plays a crucial role in enabling Circular Economy business models. Technologies such as blockchain, artificial intelligence, and the Internet of Things (IoT) enhance transparency, improve resource tracking, and facilitate closed-loop supply chains. This topic explores how digital tools optimize material flows, increase efficiency in circular supply chains, and drive new business models, such as digital product passports and predictive maintenance strategies.

Circular Economy and Policy Frameworks

The transition to a circular economy is heavily influenced by regulatory frameworks and public policies. Governments and international organizations are implementing policies that encourage sustainable product design, extended producer responsibility, and waste reduction. This topic examines key policy initiatives, such as the European Green Deal and the UN Environment Programme's circularity initiatives, and how they shape business strategies and innovation in circular economy practices.

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5. 5.WebQuest Evaluation

The evaluation of WebQuests within the SustainEd project (https://sustain-ed.eu/) ensures that they effectively enhance students' understanding of sustainability and

circular economy concepts while fostering essential green skills. The assessment focuses on multiple dimensions, including knowledge acquisition, problem-solving ability, collaboration, and critical thinking. A combination of qualitative and quantitative evaluation methods will be employed to measure the effectiveness of the WebQuests and provide constructive feedback to both students and educators.

- **What to evaluate?**

    - Students' **engagement and participation** in WebQuest activities.
    - The **depth of research and critical thinking** demonstrated in their responses.
    - Their ability to **apply sustainability concepts** in real-world scenarios.
    - Collaboration and teamwork skills during the group-based components.
    - The **impact of WebQuests on students' motivation** toward sustainability learning.

- **Who should conduct the evaluation?**

    - **Educators**: Facilitators should assess students' learning progress through observations, assignments, and discussions.
    - **Students (self-assessment and peer assessment)**: Encouraging learners to reflect on their own work and provide peer feedback enhances engagement and accountability.
    - **External stakeholders**: Industry experts or sustainability professionals may provide input on the relevance and applicability of students' solutions.

- **When should the evaluation take place?**
  Evaluation should be conducted at different stages to assess both the process and the final result of the WebQuest.

    - **Before the WebQuest (Pre-Evaluation):** Conducted before the starting the WebQuest activity to assess students' prior knowledge, skills, and expectations.
        - Conduct a short test to evaluate prior knowledge or with discussion and brainstorming to understand students' initial perspectives on the topic.
    - **Before the WebQuest / Formative evaluation**: Conducted throughout the WebQuest activities to provide immediate feedback and guide students.

        - Administer short quizzes during the WebQuest to assess understanding of key concepts and provide immediate feedback.
    - **After the WebQuest / Summative evaluation**: Conducted at the end of the WebQuest to assess overall learning outcomes and skill development.
        - Conduct comprehensive tests at the end of the WebQuest to evaluate the overall knowledge gained by the learners.

- **How to evaluate?**

    - **Performance-based assessment**: Evaluating student outputs such as reports, presentations, and digital projects.
        - Evaluate the final products created by learners, such as reports, presentations, or prototypes, based on predefined criteria that reflect the learning objectives.
        - Assess the documentation of the learners' process, including research notes, drafts, and reflections, to understand their approach and thought process.
    - **Observational assessment**: Educators monitor engagement, participation, and collaboration.
    - **Self and peer reviews**: Students evaluate their own work and that of their peers using structured criteria.
        - Encourage learners to reflect on their own contributions, challenges faced, and learning outcomes, promoting self-awareness and critical thinking.
        - Implement structured peer assessment sessions where learners evaluate each other's contributions and provide constructive feedback, fostering a collaborative learning environment.
    - **Rubrics**: A detailed scoring guide to ensure consistency and transparency in grading.

Tools for evaluation

To facilitate effective and comprehensive assessment, the following tools are recommended:

6. **Online Surveys/Feedback Forms**
    1. Used for both self-assessment and educator feedback.
    2. Use of SustainEd Quizzes (https://sustain-ed.eu/sustainedx/)
    3. Other types of quizzes can be implemented via platforms like:

1. Google Forms
2. Microsoft Forms
3. Typeform
4. Kahoot

7. **Classroom Discussion**
    1. Encouraging students to present their final outcome in the classroom or online to provoke a discussion and peer review.

8. **Discussion Forums/Reflective Journals**
    1. Encouraging students to document their learning journey in an online forum or journal to foster critical thinking and self-reflection.
    2. Educators can assess depth of engagement through student reflections.

9. **Rubrics for Consistent Evaluation**
    1. A structured rubric ensures clarity in grading and helps both students and educators understand expectations.

A well-designed rubric provides clear performance indicators and establishes evaluation consistency. Below is an example of a WebQuest Assessment Rubric with four main evaluation criteria:

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Knowledge Application	Demonstrates deep understanding of sustainability concepts; effectively applies them in real-world scenarios.	Demonstrates good understanding; applies concepts with minor gaps.	Demonstrates basic understanding; some misapplications.	Limited understanding; major misconceptions.
Critical Thinking & Problem-Solving	Provides innovative and well-researched solutions; considers multiple perspectives.	Provides logical solutions; considers different viewpoints.	Solutions are simplistic or lack strong justification.	Lacks depth in problem-solving; no critical analysis.
Collaboration & Communication	Actively participates; engages with peers constructively; strong teamwork and leadership.	Participates well; works well in group settings with minor collaboration issues.	Participates sporadically; minimal collaboration efforts.	Limited or no participation; poor teamwork.
Presentation & Creativity	Work is well-structured, engaging, and creatively presented.	Presentation is clear but lacks originality.	Basic presentation; needs more organization.	Work is disorganized and lacks creativity.

If a WebQuest focuses on **sustainable supply chain management**, the rubric can then assess:

- The **depth of their analysis** of sustainability challenges.
- The **quality of their proposed solutions**.
- The **effectiveness of their group collaboration** in creating a sustainability strategy.
- The **clarity and creativity** of their final presentation.

Online evaluation tools (AI-driven or not) can complement human assessment by providing automated grading for objective components and insights based on student performance data. Some useful tools include:

- **Rubistar: Free**
  - An online tool that assists educators in creating customized rubrics for various projects and assignments.
- **iRubric: Free trial available**
  - A comprehensive rubric development and assessment tool integrated within the RCampus platform.
- **Turnitin Feedback Studio**:
  - Enables educators to provide detailed feedback on written assignments and check for originality.
- **Peergrade or Google Classroom Peer Review**:
  - Facilitates peer assessment by allowing students to submit work and provide feedback to their peers based on instructor-defined criteria.

By using structured rubrics, digital tools, and a combination of formative and summative assessments, educators can measure student progress and enhance learning experiences. Regular review and adaptation of assessment methods will be essential in aligning WebQuests with evolving sustainability education goals.

6. Final remarks

Striving for a greener and sustainable future is essential to safeguard the planet and future generations. Environmental degradation, driven by pollution and resource depletion, endangers biodiversity and human health. Sustainable practices can mitigate climate change, preserve ecosystems, and foster a green economy that drives innovation, job creation, and equitable resource distribution. Green and digital transitions require future-proof education, research, and innovation, addressing disparities in digital skills across the EU. Higher education institutions must equip their students and staff with green and digital competencies to tackle societal challenges and leverage technological potential.

The SustainEd project is dedicated to revolutionizing sustainability education in higher education. Its goal is to prepare students to actively participate in the green transition and contribute to achieving the Sustainable Development Goals (SDGs). SustainEd aims to enhance students' understanding of sustainability and circular economy concepts, build essential green skills, and empower them to drive the green transition effectively. The project underscores the importance of collaboration between academia, industry, and stakeholders to create a sustainable future.

This handbook, SustainEdM, addresses the above-mentioned challenge for higher education institutions. SustainEdM focuses on developing an innovative learning program that integrates living labs and WebQuests to develop entrepreneurial and essential green skills among university students. This Teaching Manual supports university educators in applying the SustainEdX Toolkit for achieving maximum learning effect.

The SustainEd teaching approach is based on active, student-centered learning methods and intensive use of digital tools. This approach includes Challenge-Based Learning (CBL) and WebQuests, ensuring that learning is impactful and future-oriented. Active teaching methods emphasize "learning by doing," where students engage in experiential learning activities that foster critical thinking, problem-solving, and collaboration.

- WebQuests: are inquiry-based, student-centered learning activities designed to promote critical thinking, problem-solving, and collaborative learning. In higher education, they are used to enhance student engagement and autonomy by integrating technology into the curriculum.
- Living Labs: are open innovation ecosystems in real-life environments that promote experimentation, collaboration, and real-world problem-solving. These innovative learning spaces allow students, educators, and industry partners to work together on projects, sharing their expertise and insights.

The structure of SustainEdM, its contents and the clarity of its approach are intended to facilitate its use by university lectures, as well as any other teacher or trainer interested in these topics. Although this proposal is, like any other pedagogical proposal, a partial solution, it helps and complements other more traditional approaches in our university classrooms, allowing not only to provide teaching alternatives, but also to cater for the diversity of interests, styles and learning rhythms of university students.

In short, SustainEdM not only contributes to rethink and improve the quality of university teaching, the development of key competences among university students and the consequent increase of their employability, but also promotes a greater awareness of the importance of sustainability, circular economy and the need to increase collaboration and networking between teaching staff and university institutions across Europe.

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