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***SDG Labs Online Pocket Courses
Session plan collection***

Prague 2024

“SDG Labs Online Pocket Courses. Session plan collection”

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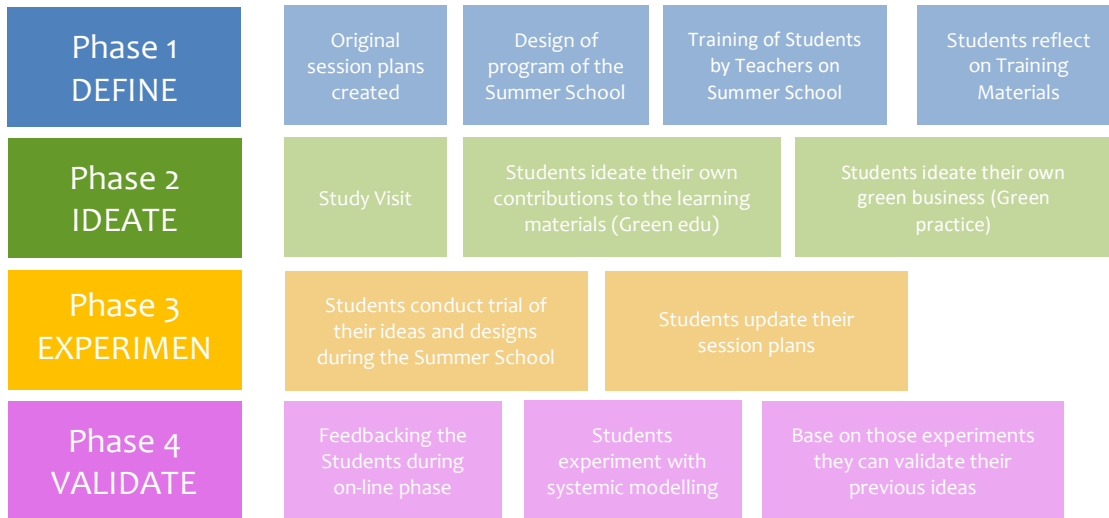
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SDG Labs – Living labs model in practice



Note: The following session plans do not belong to all of the phases of the Living Labs concept. The reason is that a session plan is not necessary for each step. For example, ideation is an organic process that was not prescribed by a session plan per se. In essence, the first phase of Definition is provided by the knowledge of teachers. The second phase is the ideation of students on how to contribute both on the education level and practical in green entrepreneurship. Then they experiment in the third phase and validation is provided when they try everything in simulation models.



Author(s): Lukas Valek Ph.D. [Prague University of Economics and Business]

Duration: 12 hours in total 3,5 hr (210 minutes F2F)

Title	Impact entrepreneurship basics
Topic(s)	<ol style="list-style-type: none"> 1. Social Economy 2. Social Entrepreneurship 3. History and core terms
Stage of the Living Labs process	Stage 1- Define
Target Group	Students (any level)
Staff (amount and necessary skillset)	At least one teacher versed in SE field (recommended to go through the literature belowfirst), better with an assistant for the activities part
Learning Objectives	The objective is to comprehend the basics and historical evolution of social economy, including its terminology, and to grasp various concepts such as social entrepreneurship, impact entrepreneurship, and hybrid entrepreneurship. Additionally, learners will gain familiarity with different business models, enabling them to analyse approaches for creating sustainable social and economic value.
Learning Outcomes	<ul style="list-style-type: none"> • Students understand and have orientation in basic terminology • Students have an overview of the history and origins of the social economy • Students are able to identify various social enterprise business models
Description of theSession	<p>Session will have three parts with debriefing at the end, recommended to make breakbetween blocks 1, 2 and 3.</p> <ol style="list-style-type: none"> 1) Mostly theoretical lecture on the history and origins of social economy. By using PowerPoint. The lecture also underlines main terminology of Social Economy, Third Sector, Solidarity Economy, Social Entrepreneurship, and Social Business.(60 minutes) 2) Part 1: An activity where students will brainstorm in pairs (or teams of 3, depending on the size of the group) on the terms Social Enterprise, Social Business, Impact Enterprise, and Hybrid Enterprise. They can use internet and technology and will have 20 minutes to do their research and then 2 minutes per team to present. (30 minutes). Part 2: The expert part, the lecturer, will clarify with a short presentation any outstanding questions. The presentation has a form of discussion over the presentations of students with aid of “hard” information on slides. (30 minutes) 3) Part 1: A presentation by lecturer about what is a business model and how that looks in Social Entrepreneurship. Introduction of <u>Social</u> Business Model Canvas.(20 minutes) Part 2: Students individually search for a social enterprise that they feel is close to their attitude and life point of view. They get half hour (30 min) to find out answersto questions: What your SE is doing (field of operation)? What is its business model? How that affects society and/or environment? Each student gets a minute to tell about their SE (if larger group, whole activity could be done in pairs). That takes 20 minutes. In total 70 minutes 4) 20 minutes for Debriefing and Wrap up. Additional time of 8,5 hours is dedicated to online materials in Moodle e-learning platform.
Formal and non-formal methods used	Formal: Lecture, frontal presentation Non-formal: Group work, work in pairs
Necessary materials	Regular office materials, flipcharts, markers, projector
Environmental conditions	Preferably a room with mobile furniture,



Attached Resources (teaching tools, forms, documents)	PPT. presentations
<i>Online part</i>	
Theoretical background to the topic	<p>The concept of Civil Society, dating back to antiquity but experiencing a resurgence during the Industrial Revolution, embodies the idea of individuals organizing to pursue their own interests separate from governmental or industrial agendas, often driven by social inequality. This self-organization leads to the formation of legal entities known as the Third Sector, characterized by associations and foundations that play independent roles within society. The Third Sector, also referred to as the social economy, emphasizes values like altruism and solidarity. Social economy entities include cooperatives, associations, foundations, and various beneficial companies. Civil society organizations serve multiple functions, including offering services, advocating for causes, building communities, and promoting societal change. Non-profit, non-governmental organizations (NGOs) are integral to civil society, existing to serve the needs of their members and the community without pursuing profitability. Social entrepreneurship, a broader concept encompassing both NGOs and social businesses, aims to address social issues while also considering financial sustainability. Social enterprises operate with a focus on solving social problems, reinvesting profits for mission fulfilment, and embodying social and environmental responsibility. The legal framework for social entrepreneurship in the Czech Republic is not explicitly defined but can be found scattered across various laws. Despite institutional voids—opportunities left unexplored by traditional businesses or NGOs—social enterprises often thrive by focusing on societal needs. Meanwhile, social services, supported by governments, address specific social problems within defined legal frameworks. Social entrepreneurship presents an alternative to traditional social services, aiming for financial self-sufficiency while staying mission-focused. Understanding social services is crucial when considering social entrepreneurship, as the two intersect in addressing societal challenges. Overall, social entrepreneurship represents a proactive approach to societal issues, combining entrepreneurial spirit with social mission fulfilment to create positive change.</p>
Additional resources	SDG Labs Digital Gallery
Video resources	N/A
Audio resources	N/A
QUIZZ TEST [Responses at last page]	<ol style="list-style-type: none"> 1. What is a Hybrid enterprise: <ol style="list-style-type: none"> a) A business with a social or environmentally beneficial mission, but for-profit b) Combination of an NGO and for-profit c) Two enterprises merged together 2. Can an NGO earn money: <ol style="list-style-type: none"> a) No b) It can gain revenue, but cannot be in profit c) It depends 3. What is institutional void?: <ol style="list-style-type: none"> a) A mental illness; b) a niche on market that no one cares for c) a situation when government is not able to take care of social issues 4. What historical period witnessed the resurgence of the concept of Civil Society?



- a) Ancient Greece
 - b) Renaissance era
 - c) Industrial Revolution
 - d) Middle Ages
5. What is the primary motivation behind the formation of Civil Society organizations?
- a) Maximizing profits
 - b) Advancing governmental goals
 - c) Pursuing interests of its members
 - d) Enhancing industrial productivity
6. Which legal entities typically play a role in the Third Sector?
- a) Government agencies
 - b) For-profit corporations
 - c) Private individuals
 - d) Legal bodies like associations and foundations
7. What is the primary characteristic that distinguishes a Social Business from traditional profit-oriented enterprises?
- a) Maximizing profit
 - b) Social mission focus
 - c) Minimal environmental impact
 - d) Limited revenue generation
8. What term describes the "empty space" that offers business opportunities often exploited by Social Enterprises?
- a) Market saturation
 - b) Institutional Void
 - c) Entrepreneurial gap
 - d) Economic vacuum
9. Which of the following is NOT a typical characteristic of Social Services?
- a) Government funding
 - b) Focus on social problems
 - c) Non-profit status
 - d) Revenue generation for shareholders
10. In the context of Social Entrepreneurship, what distinguishes a Work Integration Social Enterprise (WISE)?
- a) Focus on environmental issues
 - b) Employment of disadvantaged groups
 - c) Sole reliance on government funding
 - d) Profit maximization as the primary goal
11. What distinguishes Social Economy from traditional business and governmental sectors?
- a) Profit maximization
 - b) Focus on societal benefit
 - c) Regulatory oversight
 - d) Sole reliance on government funding
12. What is the primary purpose of Civil Society organizations?
- a) Advancing governmental agendas
 - b) Promoting political ideologies
 - c) Pursuing individual and collective interests



	<p>d) Maximizing industrial output</p> <p>13. What role do Social Enterprises typically play in addressing social issues?</p> <p>a) They exacerbate social problems b) They ignore social issues altogether c) They actively work to solve social problems d) They prioritize profit over social impact</p>
<p>Additional Literature</p>	<p>1) Beck, V. Studijní opora k modulu: Sociální podnikání v praxi [online]. Ostrava: Vysoká škola podnikání a.s., 2010. Dostupné z: http://socpo.vsp.cz/vzdelavaci-moduly/socialni-podnikani-v-praxi/</p> <p>2) Bednářiková, D., Francová, P. [eds.]. Studie infrastruktury sociální ekonomiky v ČR – plná verze. Praha: Nová ekonomika, 2011. 63 s. ISBN 978-80-260-0934-4</p> <p>3) Yunus, M. (2011). Building Social Business: The New Kind of Capitalism that Serves Humanity's Most Pressing Needs. Oxford: Blackwell.</p> <p>4) České Sociální Podnikání. Principy a definice [online]. ©2015 České sociální podnikání. Dostupné z: http://www.ceske-socialni-podnikani.cz/cz/socialni-podnikani/principy-a-definice</p> <p>5) České sociální podnikání. Tessea [online]. ©2015 České sociální podnikání. Dostupné z: http://www.ceske-socialni-podnikani.cz/cz/tessea/tessea-2</p> <p>6) Čtk. Počet sociálních podniků se za tři roky ztrojnásobil, je jich 215 [online]. In České noviny: zpravodajský server ČTK, vydáno a aktualizováno: 15. 10. 2015. Dostupné z: http://www.ceskenoviny.cz/zpravy/pocet-socialnich-podniku-se-za-tri-roky-ztrojnasil-je-jich-215/1270005</p> <p>7) Dohnalová, M. a kol. Sociální ekonomika – vybrané otázky. Praha: Výzkumná ústav práce a sociálních věcí, v.v.i., 2009. 92 s. ISBN 978-80-7416-052-3</p> <p>8) Dohnalová, M., Sedláček, V. a kol. Sociální podniky podle EMES. [online]. ©2015 České sociální podnikání. Dostupné z: https://www.ceske-socialni-podnikani.cz/cz/component/content/article/9-uncategorised/528-socialni-podniky-podle-emes</p> <p>9) Dořičáková, Š. Sociální podnikání v České republice. [online]. Odborný časopis Sociální služby: Měsíčník vydávaný Asociací poskytovatelů sociálních služeb ČR. Číslo: 6-7/ 2015, roč. 17. 2015. ISSN 1803-7348. Dostupné také z: https://www.socialnisluzby.eu/ckfinder/userfiles/files/Soci%C3%A1ln%C3%AD%20podnik%C3%A1n%C3%AD.pdf</p> <p>10) Evropský Sociální Fond V ČR. Iniciativa Společenství EQUAL (CIP EQUAL) [online]. Praha: MPSV ČR, 2008. Dostupné z: https://www.esfcr.cz/04-06/equal</p> <p>11) Fokus Praha, O.S. Sociální firma – výzva v podnikání 21. století. Praha: Fokus Praha, o.s., 2007, 46 s. Dostupné také z: https://www.socialnifirmy.cz</p> <p>12) Hunčová, M. Sociální ekonomika a sociální podnik. Ústí nad Labem: UJEP, 2007. 181 s. ISBN 978-80-7044-946-2</p> <p>13) Jičínská, A. Sociální ekonomika v České republice. [online]. Diplomová práce. Praha: Vysoká škola ekonomická v Praze, 2011. Dostupné z: http://isis.vse.cz/lide/clovek.pl?zalozka=13;id=878;studium=102790;download_prace=1</p> <p>14) Kurková, G. a kol. Manuál: jak založit sociální podnik. Praha: P3 – People, Planet, Profit, o.p.s., 2015. ISBN 978-80-260-7401-4. Dostupné také z: http://www.ceske-socialni-podnikani.cz/images/pdf/Manual_jak_zalozit_sp_2015.pdf</p> <p>15) Lank, J. Ekonomická a sociální funkce malých a středních podniků [online]. Bakalářská práce. Praha: Bankovní institut vysoká škola Praha, 2010. Dostupné z:</p>



	<p>https://is.bivs.cz/th/10419/bivs_b/Lank Josef Ek. a soc. funkce MSP .txt</p> <p>16) Svaz českých a moravských výrobních družstev. Manuál pro přežití sociálního podnikatele [online]. Praha: AfterCare v sociálním podnikání, 2010. Dostupné z: http://www.komora-socialnich-podniku.cz/wp-content/uploads/2014/03/MANU%C3%81L_PRO_P%C5%98E%20%BDIT%C3%8D_SOCI%C3%81LN%C3%8DHODPODNIKATELE.pdf</p> <p>17) Srovátková, J. Sociální podnikání. Liberec: Technická univerzita, 2010. 117s. ISBN 978-80-7372-683-6</p> <p>18) Topinková, H. Sociální podnikání – Nový fenomén v České republice [online]. Magisterská diplomová práce. Olomouc: Univerzita Palackého v Olomouci, 2013. Dostupné z: http://docplayer.cz/3741869-Socialni-podnikani-novy-fenomen-v-ceske-republice.html</p> <p>19) Trčka, L., Daneš, J. a kol. Sociální podnikání: Teorie pro praxi. Brno: Ústav sociálních inovací. 2014. 96 s. ISBN 978-80-260-7215-7.</p> <p>20) Vyskočil, M. Podklad pro koncepci politiky vlády vůči NNO do roku 2020. Sociální podnikání [online]. Brno: Centrum pro výzkum neziskového sektoru, Masarykova Univerzita, 2014. Dostupné z: http://www.vlada.cz/assets/ppov/rnno/dokumenty/studie_vyskocil_pro_web.pdf</p> <p>21) Zákon č. 435/ 2004 Sb., o zaměstnanosti</p>
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Author(s): Lukas Valek Ph.D. [Prague University of Economics and Business]

Duration: 10 hours in total 3 hours (180 minutes F2F)

Title	Impact Measurement and Purpose
Topic(s)	How do we measure impact in Social and Impact Entrepreneurship
Stage of the Living Labs process	Stage 1- Define
Target Group	Students (any level), it is a basic course
Staff (amount and necessary skillset)	At least one teacher versed in SE field (recommended to go through the literature belowfirst), better with an assistant for the activities part.
Learning Objectives	Measurement of Entrepreneurial Impact: Students will learn various methods and tools for measuring the impact of their entrepreneurial ventures, including both quantitative and qualitative indicators. They will understand the importance of assessing social, environmental, and economic outcomes to gauge the effectiveness of their initiatives. Reflection on Purpose: Students will be encouraged to critically reflect on their roles as social entrepreneurs and the underlying purpose driving their ventures. Through guided discussions and exercises, they will explore their personal values, motivations, and aspirations, fostering a deeper understanding of their social impact goals and their commitment to creating positive change. Students will gain access to additional tools and resources aimed at enhancing their capabilities as social entrepreneurs.
Learning Outcomes	<ul style="list-style-type: none"> • Students know what is impact and the impact chain • Students are aware of the theory of change • Students can reflect on themselves as social entrepreneurs and why they go to “social” and not regular business • Students are able to use additional tools to improve their business model
Description of the Session	<p>Part 1: Lecture about the theory of change and impact measurement (30 minutes).</p> <p>Part 2: Students (working in 4-6 groups) take an example of an SE from yesterday and search how they measure impact, make summary, and build the impact chain of that SE on provided templates. (30 minutes)</p> <p>Part 3: Student groups are paired and they discuss the impact chains with their peers from other group. They take notes of most interesting remarks (20 minutes – 10 minute per side).</p> <p>Part 4: Debriefing, and discussion 10 minutes.</p> <p>In total 90 minutes</p> <p>Purpose and other tools. Method – Paper Carousel.</p> <p>Part 1: Students are divided to 4 groups of an equal amount of students each group gets prepared materials about one of selected topics (Purpose, Value proposition canvas, Empathy map, Minimum viable product). Each group learns it (and the lecturer is present at all stages of that process), and then new groups are created in which there is always one person from the previous group, so there is one “expert” on each topic. These experts take turn explaining the tool. (20 + 30 minutes)</p> <p>Part 2: Lecturer asks for questions (there are usually plenty), and then has 4 slide presentations with mentioned tools and we go one by one, answering unanswered and clarifying questions, ending with debriefing (40 minutes).</p> <p>90 Minutes in Total</p> <p>Additional time of 7 hours is dedicated to online materials in Moodle elearning platform</p>
Formal and non-formal methods used	Formal: Lecture, frontal presentation, information search Non-formal: Group work, work in pairs, paper carousel
Necessary materials	Regular office materials, flipcharts, markers, projector, Theory of chain and impact chain templates



Environmental conditions	Preferably a room with mobile furniture.
Attached Resources	PPT. presentations, theory of change and impact chain templates, the rest is in the SDGLabs Digital Gallery
<i>On-line</i>	
Theoretical background to the topic	Social business models represent innovative approaches to addressing social and environmental challenges while ensuring financial sustainability. These models often incorporate elements such as the purpose economy, as conceptualized by Aaron Hurst, which emphasizes the importance of aligning business objectives with societal impact. To develop effective social business models, entrepreneurs utilize tools like the value proposition canvas and the Double Diamond model to identify customer needs, create compelling value propositions, and design scalable solutions. Additionally, the concept of the minimum viable product (MVP) guides entrepreneurs in efficiently testing their ideas in the market and iterating based on feedback. Impact measurement is integral to these models, with the Theory of Change providing a systematic framework for understanding how activities lead to desired outcomes. Techniques like the users empathy map aid in empathizing with stakeholders and designing interventions that resonate with their needs, ultimately contributing to more meaningful and sustainable social impact
Additional resources	Please use links from the SDG Labs Digital Gallery and the MOOC, plus additional appropriate resources: https://sdglabs.uom.edu.gr/the-value-proposition-canvas/ https://sdglabs.uom.edu.gr/purpose-task/ https://sdglabs.uom.edu.gr/empathy-map-task-design/ https://sdglabs.uom.edu.gr/minimum-viable-product-task-lecture/ Impact Ventures: https://about.betterworldbooks.com/impact/ https://www.rekola.cz https://www.pragulic.cz https://www.ecosia.org https://www.4ocean.com/pages/our-impact https://dopper.com/our-mission https://eu.bioliteenergy.com/pages/mission https://www.filtermac.com
Video resources	 BMCanvases forSE.mp4
Audio resources	
QUIZZ TEST [Responses at last page]	<ol style="list-style-type: none"> 1) What is the impact chain <ol style="list-style-type: none"> a) output, outcome, impact b) impact, outcome, output c) outcome, income, output 2) Which of the following components is typically included in a User Empathy Map? <ol style="list-style-type: none"> a) Customer Segments b) Revenue Streams c) Needs and Pains d) Key Partners 3) What is one of the main elements included in the Value Proposition Canvas? <ol style="list-style-type: none"> a) Marketing Channels b) Key Activities c) Customer Jobs d) Cost Structure 4) What concept is central to Aaron Hurst's idea of the Purpose Economy?



	<ul style="list-style-type: none"> a) Profit Maximization b) Market Saturation c) Meaningful Work d) Resource Efficiency <p>5) What does the Double Diamond Model emphasize in the design process?</p> <ul style="list-style-type: none"> a) Rapid Prototyping b) Market Research c) Divergent and Convergent Thinking d) Competitive Analysis <p>6) What is a key aspect of developing a Theory of Change?</p> <ul style="list-style-type: none"> a) Maximizing shareholder value b) Implementing cost-cutting measures c) Identifying long-term goals and desired outcomes d) Increasing market share <p>7) What is the purpose of a Theory of Change?</p> <ul style="list-style-type: none"> a) To increase employee turnover b) To decrease customer satisfaction c) To articulate how activities lead to desired impacts d) To reduce operational efficiency <p>8) What does the Theory of Change help organizations to understand?</p> <ul style="list-style-type: none"> a) Short-term financial gains b) Employee absenteeism c) Causal relationships between actions and outcomes d) Competitive pricing strategies
Additional Literature	



Author(s): Elżbieta Szczygieł, PhD [University of the National Education Commission, Krakow]

Duration: 25 hours in total (10 hours F2F)

Title	How to consume in circular way - circular economy in everyday life
Topic(s)	Circular economy, circular consumption, circular behaviours 1. The idea of circular economy 2. Pros and cons for circular economy 3. How can I incorporate the circular economy into my daily life
Stage of the Living Labs process	Stage 1- Define
Target Group	Students
Staff (amount and necessary skillset)	HE Teachers (needed research background in the field of circular economy and circular behaviours)
Learning Objectives	The aim of the module is to explain the concept of the Circular Economy (CE) and illustrate with real-life examples how it can be adopted as a sustainable way of thinking and acting in everyday life, especially in professional work of social economy entities.
Learning Outcomes	<ul style="list-style-type: none"> • <u>Knowledge</u>: to explain the idea of circular economy and the process of its implementation, • <u>Comprehension</u>: to understand how to implement the circular economy into everyday life, • <u>Application</u>: to provide the achievable actions taken up by ourselves, • <u>Analysis</u>: to analyse the benefits of taken up the circular behaviours, • <u>Synthesis</u>: to transform non-circular behaviour into behaviour that fits into a circular economy.
Description of the Session	<p>The entire course is divided into two parts.</p> <p>The first is organised in a traditional format (10 hours meeting between the tutor/teacher and a group of students). Students work in blocks of 45-50 minutes at the discretion of the tutor. This on-site (or on-line) part of the course contains three topics:</p> <ol style="list-style-type: none"> 1) The idea of circular economy, 2) Pros and cons for circular economy, 3) How can I incorporate the circular economy into my daily life? <p>The second part of the course is organised in the form of informal teaching (students work independently observing their circular behaviour and collecting material related to this topic in their daily life).</p> <p>The main topic of the assignment is: <i>Analyse your daily activities and make a list of all those in which you consume resources. Evaluate how many of these resources you are using unnecessarily and propose activities to reduce their use. Try to apply them for 2 days and make a list of the costs and benefits of your new way of doing things.</i></p> <ul style="list-style-type: none"> – Which of these activities would you like to undertake in the future? – Which were the easiest and which were the most difficult to apply? – Do the benefits of applying circular behaviour outweigh the costs? – Is the limiting factor for undertaking circular behaviour financial costs or is it more of a habit? <p>Students allocate 15 hours of independent work, culminating in a report describing their pro-circular attitude. The report is sent to the course tutor to be reviewed.</p>
Formal and non-formal methods used	1 st Part of the course is processed in formal education (traditional method of learning with tutor/teacher and group of students). Non-formal part concerns the 2 nd .
Necessary materials	<ul style="list-style-type: none"> • Personal Computer with Internet Access / Class room • PowerPoint presentations,



	<ul style="list-style-type: none"> Paper and pencil, flipchart, <p>Hard copy or digital version of materials [see below]</p>
Environmental conditions	<p>1st Part of training in Face-to-Face formula (10 hours) should be organized in traditional class or as on-line meeting with the group.</p> <p>2nd Part of training in self-learning formula (15 hours).</p>
Attached Resources	<p>Szczygieł, E. (2020). <i>Circular behaviours in households and the quality of life of their inhabitants</i> – research questionnaire</p>
<i>On-line</i>	
Theoretical background to the topic	<p>The implementation of the principles of the circular economy at the micro level takes place through specific actions taken by all participants in the economy. Actions taken by individual enterprises are most often considered, although the issue of actions in households or other types of organisations is increasingly being addressed. With regard to households, it has been accepted to speak of so-called circular behaviour, which, unlike pro-environmental behaviour or so-called sustainable consumption, aims to reduce the demand for resources in the long term. In other words, their effect is to reduce the need for hard-to-renew resources by using those already in use or replacing them with alternative and environmentally friendly ones.</p> <p>However, the role of social economy entities is relatively rarely mentioned in relation to the circular economy, even though the concept emphasises the social dimension of the activities undertaken. The weak emphasis on the role of social economy entities may result from their functioning mainly in the non-production, service sphere. However, this does not mean that entities of this type could not be an important element supporting the implementation of the idea of a circular economy. Like households, social economy entities can also take action towards a circular economy by applying a specific set of pro-cycling activities in their day-to-day operations. This is the first stage of implementing the CE in their activities.</p> <p>Another may be to undertake changes in the object of operation, which may mean changes in the formula of services provided or in the mode of production (if this is the object of activity of the social economy entity). It seems that these steps should be taken in this order, as without an understanding of the concept of the CE at the level of employees and members of the social economy entity, joining the circular economy may be very difficult. This is particularly true for entities that combine social aspects with business objectives in their activities. We are talking here about social enterprises, which are places of employment for a certain group of economically active people.</p> <p>The circular economy is a new approach to the way available natural resources are used in the economy. In contrast to the so-called linear economy, the circular economy involves the return of previously used raw materials to the production system in the form of materials for the manufacture of new products. In other words, in contrast to the linear economy, which was dominated by the take-use-throw principle, the circular economy emphasises the priority of using raw materials that have already come into use for as long as possible by reducing their acquisition, reusing those already used and recycling (reduce-reuse-recycle).</p> <p>To date, efforts to implement the circular economy have focused primarily on the production sphere implemented in commercial enterprises. There has been much less focus on other types of entities, both institutional market participants and individual market actors. On the other hand, actors with no direct connection to the production sphere were treated rather marginally. Meanwhile, the challenges of the green transition require the consideration of all actors who, to a greater or lesser extent, can influence the results obtained by the economy as a whole.</p>



Additional resources	<p>Please use links from the SDG Labs Digital Gallery and the MOOC, plus additional appropriate resources:</p> <p>https://sdglabs.uom.edu.gr/lecture-plan-how-to-consume-in-a-circular-way-circular-economy-in-everyday-life-2/</p> <p>https://sdglabs.uom.edu.gr/quizzes-summary-of-courses-how-to-consume-in-circular-way-circular-economy-in-everyday-life-how-to-build-in-a-circular-way-consumption-of-renewable-energy-sustainable-food-system-in-everyday-li/</p> <p>https://sdglabs.uom.edu.gr/consumption-in-circular-way/</p> <p>https://sdglabs.uom.edu.gr/circular-economy-as-an-answer-to-the-challenge-of-improving-the-quality-of-life/</p> <p>https://sdglabs.uom.edu.gr/circular-economy-a-new-concept-or-a-necessity/</p> <p>https://sdglabs.uom.edu.gr/circular-behaviours-undertaken-by-polish-households/</p> <p>https://sdglabs.uom.edu.gr/between-declaration-and-action/</p> <p>https://sdglabs.uom.edu.gr/meeting-halfway-understanding-circular-behaviours-among-households-as-a-starting-point-for-business-practices/</p> <p>https://sdglabs.uom.edu.gr/questionnaire-circular-behaviour-in-households-and-the-quality-of-life-of-their-inhabitants/</p> <p>https://sdglabs.uom.edu.gr/circular-economy-pros-cons/</p> <p>https://sdglabs.uom.edu.gr/green-skills-as-an-element-of-green-transformation/ https://sdglabs.uom.edu.gr/how-can-i-incorporate-the-circular-economy-into-my-daily-life/</p>
Video resources	
Audio resources	
QUIZZ TEST [Responses at last page]	<ol style="list-style-type: none"> What is a Circular economy (Choose the correct answers): <ol style="list-style-type: none"> waste reduction natural resources reusing recycling and recovery of materials in production, distribution or consumption processes isolates the national economy from other economies uses only what has already been used in products Which sentence describes linear economy: <ol style="list-style-type: none"> take-make-dispose reduce-reuse-recycle-recovery What is circular behaviour: <ol style="list-style-type: none"> behaviour with a view to increasing the use of resources without altering the quantity used behaviour aimed at decreasing the demand of the resources each pro-environmental activity What is 3R's strategy: <ol style="list-style-type: none"> an abbreviation of Reduce, Reuse and Recycle an abbreviation of Remanufacture, Re-purpose, Recover an abbreviation of Re-use, Repair, Refurbish Compare the activities and choose more circular ones: <ol style="list-style-type: none"> sorting a garbage into wet and dry fraction using water sparingly Compare the activities and choose more circular ones: <ol style="list-style-type: none"> using used plastic packaging for other purposes doing the laundry when it's enough to load the entire washing machine



	<p>7. Compare the activities and choose more circular ones:</p> <p>a) repairing broken small electronic and technical equipment</p> <p>b) using solar panels or photovoltaic collectors at home</p>
<p>Additional Literature</p>	<p>1. Webpages:</p> <p>https://www.ellenmacarthurfoundation.org/the-circular-economy-in-detail-deep-dive Principles of a circular economy</p> <p>https://www.mckinsey.com/capabilities/sustainability/our-insights/mapping-the-benefits-of-a-circular-economy Benefits of a circular economy</p> <p>https://youmatter.world/en/definition/definitions-circular-economy-meaning-definition-benefits-barriers/ Principles of a circular economy</p> <p>https://ec.europa.eu/environment/circular-economy/ EU action plan for a circulareconomy</p> <p>https://knowledge4policy.ec.europa.eu/foresight/topic/changing-nature-work/impact-shift-circular-economy_en/ Changing the impact of a circular economy</p> <p>https://www.circle-economy.com/resources/disruptors-how-circular-start-ups-can-accelerate-the-circular-economy-transition University of Utrecht Report (2019), “Disruptors: How can circular start-ups accelerate the circular economy transition”</p> <p>Circle Economy. The Circularity Gap Report: An analysis of the circular state of the globaleconomy. (2018)</p> <p>2. Scientific papers (on-line available):</p> <p>Araujo Galvão, G.D., de Nadae, J., Clemente, D.H., Chinen, G., de Carvalho, M.M. (2018). Circular Economy: Overview of Barriers, <i>Procedia CIRP</i>, 73, pp. 79-85, (DOI: https://doi.org/10.1016/j.procir.2018.04.011).</p> <p>Cavallo, M., Cencioni, D. (2017). <i>Circular economy, benefits and good practices</i>. EdizioniAmbiente.</p> <p>Korhonen, J., Honkasalo, A., Seppälä, J. (2018), Circular Economy: The Concept and its Limitations, <i>Ecological Economics</i>, 143, (C), pp. 37-46 (DOI: https://doi.org/10.1016/j.ecolecon.2017.06.041).</p> <p>Korsunova, A., Horn, S., Vainio, A. (2021). Understanding circular economy in everydaylife: Perceptions of young adults in the Finnish context. <i>Sustainable Production and Consumption</i>, 26, pp. 759-769 (DOI: https://doi.org/10.1016/j.spc.2020.12.038).</p> <p>Kowalska, K., Szczygieł, E., Szyja, P., Śliwa, R. (2022). <i>SDG Labs Research Report. Green skills in the field of Social Economy. The theoretical model of Socially Driven Green Labs programme</i>, Pedagogical University of Krakow (https://sdglabs.uom.edu.gr/sdg-labs-research-report/)</p> <p>Lakatos, E.S., Dan, V., Ionel Cioca, L., Bacali, L., Ciobanu, A.M. (2016). How Supportive Are Romanian Consumers of the Circular Economy Concept: A Survey. <i>Sustainability</i>, 8, pp. 789 (DOI: https://doi.org/10.3390/su8080789)</p> <p>Szczygieł, E. (2020). Circular economy as an answer to the challenge of improving the quality of life, <i>Hradec Kralove Economic Days 2020 Conference Proceedings</i>, 10, pp.770-781 (DOI: https://doi.org/10.36689/uhk/hed/2020-01-087).</p> <p>Szczygieł, E. (2021a). Circular economy – a new concept or necessity, <i>International Affairs</i>, 74(3), pp. 147-168 (DOI: https://doi.org/10.35757/SM.2021.74.3.12).</p> <p>Szczygieł, E. (2021b). The circular behaviours undertaken by Polish households – a preliminary analysis of research results, <i>Studies of the Industrial Geography Commission of the Polish Geographical</i></p>



	<p><i>Society</i>, 35(4), pp. 188-204 (DOI: https://doi.org/10.24917/20801653.354.12).</p> <p>Szczygieł, E., Kowalska, K. (2021). Meeting halfway - understanding circular behaviour among households as a starting point for business practices, <i>European Research Studies Journal</i>, XXIV(3B), pp. 967-980 (DOI: https://doi.org/10.35808/ersj/2550).</p> <p>Szczygieł, E., Lwowska, A., Hajduk-Stelmachowicz, M., (2022). Between declaration and action – an analysis of the results of research on circular behaviours taken up by the households and perceived benefits from them, <i>Studies of the Industrial Geography Commission of the Polish Geographical Society</i>, 36(3), pp. 122-133 (DOI: https://doi.org/10.24917/20801653.363.9).</p> <p>Winans, K., Kendall, A., Deng, H. (2017). The history and current applications of the circular economy concept, <i>Renewable and Sustainable Energy Reviews</i>, 68(1), pp.825-833 (DOI: https://doi.org/10.1016/j.rser.2016.09.123).</p>
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Reflection

How the session went, what are main learning points and good and bad practices, quick summary of changes.

In the stationary part, it is important to have everyone in one place and to be able to divide them into different teams to carry out subtasks. It is important to summarise the results of the teams. For the online part, it is necessary to provide access to the Internet and to provide in advance (e.g. in a repository) the materials on which the pupils will work. Easy access and taking care of the technical side is a necessary element of a good organisation of this course, so that in case of a combination of forms (stationary and online), the transition is smooth and the content of the course is not lost.



Author(s): Katarzyna Kowalska PhD [University of the National Education Commission, Krakow]

Duration: 25 hours in total (10 hours F2F)

Title	How to build in a circular way
Topic(s)	<ol style="list-style-type: none"> 1. The idea of sustainable construction. 2. Benefits and costs of sustainable construction 3. How to implement responsible innovation in construction at the level of supply and demand?
Stage of the Living Labs process	Stage 1- Define
Target Group	Students
Staff (amount and necessary skillset)	HE Teachers (needed research background in the field of sustainable housing).
Learning Objectives	The aim of the module is to explain the concept of the SUSTAINABLE HOUSING and illustrate with real-life examples how it can be adopted as a sustainable way of thinking and acting in everyday life, especially in professional work of social economy entities.
Learning Outcomes	<ul style="list-style-type: none"> • Knowledge: to explain the idea of a sustainable building process and the conditions for its implementation, • Understanding: to understand how to implement green building in everyday life, • Application: to demonstrate the feasible actions taken by ourselves, • Analysis: to analyse the benefits of taking action towards sustainable building innovation, • Synthesis: to transform linear choices and practices into behaviours that fit into a circular economy
Description of the Session	<p>The entire course is divided into two parts.</p> <p>The first is organised in a traditional format (10 hours meeting between the tutor/teacher and a group of students). Students work in blocks of 45-50 minutes at the discretion of the tutor. This on-site (or on-line) part of the course contains three topics:</p> <ol style="list-style-type: none"> 1. The idea of sustainable construction 2. Benefits and costs of sustainable construction 3. How to implement responsible innovation in construction at the level of supply and demand? <p>The second part of the course is organised in the form of informal teaching (students work independently).</p> <p>The main topic of the assignment is: Homework: Analyse your daily activities where you live and make a list of all those in which you consume resources. Evaluate how many of these resources you use unnecessarily and propose actions to reduce their use at the level of design and use of the premises.</p> <p>Consider what actions at the level of awareness-raising in different sectors of the economy are necessary to accelerate the implementation of sustainable construction. Students allocate 15 hours of independent work, culminating in a report. The report is sent to the course tutor to be reviewed.</p>
Formal and non-formal methods used	1 st Part of the course is processed in formal education (traditional method of learning with tutor/teacher and group of students). Non-formal part concerns the 2 nd Part of the course, when students organize learning by themselves and do the activities independently.
Necessary materials	<ul style="list-style-type: none"> • Personal Computer with Internet Access / Class room • PowerPoint presentations, • Paper and pencil, flipchart



	<ul style="list-style-type: none"> • Hard copy or digital version of materials [see below]
Environmental conditions	<p>1st Part of training in Face-to-Face formula (10 hours) should be organized in traditional class or as on-line meeting with the group.</p> <p>2nd Part of training in self-learning formula (15 hours).</p>
Attached Resources	<p>https://www2.deloitte.com/pl/pl/pages/press-releases/articles/zrownowazony-rozwoj-motorem-wzrostu-dla-branzy-budowlanej.html Sustainability to drive growth for the construction industry.</p> <p>https://ceo.com.pl/deloitte-branza-budowlana-odegra-jedna-z-kluczowych-rol-w-osiaganiu-neutralnosci-klimatycznej-99020 The construction industry will play a key role in achieving climate neutrality.</p> <p>https://www.rondo1.pl/budynek Architectural icon of Warsaw.</p> <p>https://depot.ceon.pl/bitstream/handle/123456789/12067/M%C5%9AP_1_p.pdf?sequence=1 Entrepreneurs in Poland - facts, figures, examples.</p> <p>https://odpowiedzialnybiznes.pl/wp-content/uploads/2012/12/Mierzenie-efektywnosci-dzialan-CSR_FOB_2012.pdf Measuring the social impact of CSR.</p> <p>https://knowledge4policy.ec.europa.eu/foresight/topic/changing-nature-work/impact-shift-circular-economy_en/ Changing the impact of a circular economy.</p>
<i>On-line</i>	
Theoretical background to the topic	<p>A green building, or more specifically a sustainable building, is a building that is economical, comfortable and created with respect for the environment. By designing, constructing and using green buildings, we are simultaneously meeting our current needs and ensuring that future generations can meet their future needs. Methods of conserving natural resources and caring for the environment are considered at all stages of the life of such a building. Sustainable housing in a broader context is also related to social issues, namely the organization of social life, reducing negative social impacts, social inclusion, strengthening social ties.</p>
Additional resources	<p>Please use links from the SDG Labs Digital Gallery and the MOOC, plus additional appropriate resources:</p> <p>https://sdglabs.uom.edu.gr/sustainable-housing-developing-a-causal-loop-diagram/</p> <p>https://sdglabs.uom.edu.gr/sustainable-housing-systemic-thinking/</p> <p>https://sdglabs.uom.edu.gr/case-study-fundacja-senzimira-senzimira-foundation/</p> <p>https://sdglabs.uom.edu.gr/lecture-plan-how-to-build-in-a-circular-way/</p>
Video resources	N/A
Audio resources	N/A
QUIZZ TEST [Responses at last page]	<ol style="list-style-type: none"> 1. Sustainable construction is characterised by: <ol style="list-style-type: none"> a) exclusively care for the environment b) exclusively an efficient use of raw materials c) environmental care and resource efficiency 2. The most common sustainable building rating systems in Poland are: <ol style="list-style-type: none"> a) UPPEL certification b) LEED certification c) BREEAM certificate 3. Features of a sustainable building are: <ol style="list-style-type: none"> a) the use of building management systems that monitor and control equipment and installations to minimise the consumption of energy and other resources b) minimisation of waste generation and recycling c) outsourcing of utility functions



	<p>d) avoidance of toxic and other harmful emissions</p> <p>4. The use of environmentally friendly materials for construction means that the criterion is met:</p> <p>a) energy and water are conserved in their manufacture</p> <p>b) they are produced globally, without any local arrangement</p> <p>5. As part of a local initiative:</p> <p>a) residents may be represented by a non-governmental organisation</p> <p>b) residents are obligatorily represented by a non-governmental organisation</p> <p>6. A revitalisation programme for part of the local layout:</p> <p>a) developed by the local authority with the involvement of residents</p> <p>b) developed by the local authority with involvement of selected business groups</p> <p>7 Local regeneration programmes are intended to:</p> <p>a) reduce Foreign Direct Investment (FDI) in an area</p> <p>b) revitalise derelict inner cities</p> <p>c) re-establishing social ties in large housing estates</p>
<p>Additional Literature</p>	<p>Adamczyk, J., Dylewski R., (2010), <i>Recycling construction waste in the context of sustainable construction</i>, Problems of eco-development, vol. 5, nr 2, pp. 125-131., (https://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-article-BPL2-0017-0024).</p> <p>Deloitte, (2018), <i>Closed loop - open opportunities Prospects for developing a closedloop economy in Polandm</i>, (https://www2.deloitte.com/pl/pl/pages/zarzadzania-procesami-i-strategiczne/articles/innowacje/raport-zamkniety-obieg-otwarte-mozliwosci.html).</p> <p>European Commission, (2018), <i>Public procurement for a circular economy</i>, (http://ec.europa.eu/environment/gpp/pdf/cp_european_commission_brochure_pl.pdf).</p> <p>Mazur-Wierzbicka E (2014), <i>Eco-innovation - an important element of sustainable construction</i>, Internal trade, University of Szczecin, 5(352):138-148, pp.138-148, (http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-dc642495-4f86-40c3-ba28-67a605a4ca69).</p> <p>Kowalska, K., Szczygieł, E., Szyja, P., Śliwa, R. (2022). <i>SDG Labs Research Report.Green skills in the field of Social Economy. The theoretical model of Socially DrivenGreen Labs programme</i>, Pedagogical University of Krakow (https://sdglabs.uom.edu.gr/sdg-labs-research-report/).</p> <p>Szczygieł, E., Kowalska, K. (2021). Meeting halfway - understanding circular behaviouramong households as a starting point for business practices, <i>European Research Studies Journal</i>, XXIV(3B), pp. 967-980 (DOI: https://doi.org/10.35808/ersj/2550).</p> <p>Sztuba M., (2021), <i>Modern technology and innovation are changing construction</i>, <i>Modern Engineering Construction</i>, nr. 3., pp. 36-52, (http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.baztech-150d84e5-5008-4e6b-abdf-e095d6a316e6).</p>



Reflection

How the session went, what are main learning points and good and bad practices, quick summary of changes.

In the stationary part, it is important to have everyone in one place and to be able to divide them into different teams to carry out subtasks. It is important to summarise the results of the teams. For the online part, it is necessary to provide access to the Internet and to provide in advance (e.g. in a repository) the materials on which the pupils will work. Easy access and taking care of the technical side is a necessary element of a good organisation of this course, so that in case of a combination of forms (stationary and online), the transition is smooth and the content of the course is not lost.



Author(s): Paulina Szyja PhD [University of the National Education Commission, Krakow]

Duration: 25 hours in total (10 hours F2F)

Title	Renewable Energy
Topic(s)	<ol style="list-style-type: none"> 1. Genesis and types of the renewable energy sources. 2. European, governmental and local authorities instruments to encourage households, companies to introduce renewable energy sources. 3. Good practices related to renewable energy sources in European Countries.
Stage of the Living Labs process	Stage 1- Define
Target Group	Students
Staff (amount and necessary skillset)	HE Teachers (needed research background in the field of renewable energy)
Learning Objectives	The aim of the module is to explain the importance of renewable energy sources for improving the quality of the environment, people's living conditions and socio-economic development.
Learning Outcomes	<ul style="list-style-type: none"> • Knowledge: to explain the importance of renewable energy sources in reducing fossil fuel consumption, • Comprehension: to understand how using renewable energy sources helps reduce air pollution as opposed to using fossil fuels as energy sources, • Application: to provide the achievable actions taken up governments, enterprises and households to develop renewable energy sources, • Analysis: to analyse the benefits of taken up renewable energy sources, • Synthesis: to ditch fossil fuel energy in favour of renewable energy to reduce carbon emissions, become independent of fossil fuels and increase energy security
Description of the Session	<p>The entire course is divided into two parts.</p> <p>The first is organised in a traditional format (10 hours meeting between the tutor/teacher and a group of students). Students work in blocks of 45/25/20 minutes at the discretion of the tutor. This on-site part of the course contains three topics:</p> <ol style="list-style-type: none"> 1. Genesis and types of the renewable energy sources. 2. European, governmental and local authorities instruments to encourage households, companies to introduce renewable energy sources. 3. Good practices related to renewable energy sources in European countries. <p>The second part of the course is organised in the form of informal teaching (students work independently).</p> <p>They prepare materials on the history of the development of investments related to renewable energy sources in their country, indicate what kind of renewable energy sources are the most popular and what this is due to, indicate what entities are investing in such solutions, and then find information on the most innovative projects that are being implemented.</p>
Formal and non-formal methods used	1 st Part of the course is processed in formal education (traditional method of learning with tutor/teacher and group of students). Non-formal part concerns the 2 nd Part of the course, when students prepare materials.
Necessary materials	<ul style="list-style-type: none"> • Personal Computer with Internet Access / Class room • PowerPoint presentations, • Paper and pencil, flipchart • Hard copy or digital version of materials [see below]
Environmental conditions	1 st Part of training in Face-to-Face formula (10 hours) should be organized in traditional class. 2 nd Part of training in self-learning formula (15 hours).
Attached Resources	https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Renewable_energy_statistics Statistics of



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	<p>renewable energy sources https://energy.ec.europa.eu/topics/renewable-energy_en Renewable energy https://www.edfenergy.com/energywise/renewable-energy-sources Types of renewable energy sources https://www.eia.gov/energyexplained/renewable-sources/ Renewable energy explained https://www.un.org/en/climatechange/what-is-renewable-energy What is renewable energy? https://www.nationalgrid.com/stories/energy-explained/history-of-energy-UK The history of energy https://ourworldindata.org/global-energy-200-years How have the world's energy sources changed over the last two centuries? https://www.epa.gov/sites/default/files/2018-07/documents/mbg_1_multiplebenefits.pdf The Multiple Benefits of Energy Efficiency and Renewable Energy https://www.weforum.org/agenda/2022/04/visualizing-the-history-of-energy-transitions/ The 200-year history of mankind's energy transitions M.B. Gallagher (2019). The race to develop renewable energy technologies Mechanical engineers rush to develop energy conversion and storage technologies from renewable sources such as wind, wave, solar, and thermal, https://news.mit.edu/2019/race-develop-renewable-energy-technologies-1218.</p>
<i>On-line</i>	
Theoretical background to the topic	<p>Obtaining energy from energy sources is becoming more common these days. Therefore, it is reasonable to get acquainted with the types of renewable energy sources, the genesis of their use, their application, and, finally, the benefits to man, the environment and the economy.</p> <p>The online sources allow to get information about terminology related to renewable energy, types of renewable energy, ways and methods of obtaining them, technological solutions used, innovations, as well as the most impressive projects in this field. No less important is the knowledge of instruments to encourage the implementation of renewable energy solutions and good practices.</p>
Additional resources	<p>Please use links from the SDG Labs Digital Gallery and the MOOC, plus additional appropriate resources: https://sdglabs.uom.edu.gr/quizzes-consumption-of-renewable-energy/ https://sdglabs.uom.edu.gr/renewable-energy-multiple-choice-questions/ https://sdglabs.uom.edu.gr/renewable-energy-developing-a-causal-loop-diagram/ https://sdglabs.uom.edu.gr/lecture-plan-consumption-of-renewable-energy/</p>
Video resources	N/A
Audio resources	N/A
QUIZZ TEST [Responses at last page]	<ol style="list-style-type: none"> Please identify renewable energy sources: <ol style="list-style-type: none"> wind Energy nuclear energy biomass energy coal Which renewable energy sources dominate electricity generation in the EU? <ol style="list-style-type: none"> wind energy solar energy hydro power energy



	<p>d) biomass energy</p> <p>3. What renewable energy sources dominate electricity generation in your country?</p> <p>4. What country in Europe has the most geothermal energy?</p> <p>a) France b) Norway c) Iceland</p> <p>5. What is the share of renewable energy in the EU's Gross Final energy consumption?</p> <p>a) about 22% b) about 15% c) about 30%</p> <p>6. What is the share of renewable energy in Gross Final energy consumption in your country?</p> <p>7. What is the most cost-effective source of renewable energy that you can invest in for your household?</p> <p>a) solar energy b) biogas energy c) wind energy</p>
Additional Literature	<p>Ellabban O., Abu-Rub H., Blaabjerg F. (2014). Renewable energy resources: Current status, future prospects and their enabling technology. <i>Renewable and Sustainable Energy Reviews</i>, No. 39, pp. 748-764.</p> <p>Majida L. H., Majidb H. H., Husseinc H. Fawzi (2018). Analysis of Renewable Energy Sources, Aspects of Sustainability and Attempts of Climate Change. <i>American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)</i>, Volume 43, No 1, pp 22-32.</p> <p>Marks-Bielska R., Bielski S., Pik K., Kurowska K. (2020). The Importance of Renewable Energy Sources in Poland's Energy Mix. <i>Energies</i>.</p> <p>Petrović-Ranđelović M., Kocic N., Stojanović-Ranđelović B. (2020). The importance of renewable energy sources for sustainable development. <i>Economics of sustainable development</i>, Vol. 4, July-December 2020, № 2, pp.5-14.</p> <p>Sørensen B. (1991). A history of renewable energy technology. <i>Energy Policy</i>, Vol. 19, Issue 1, January–February 1991, pp. 8-12.</p> <p>Turkenburg W.C, <i>World Energy Assessment: Energy and the Challenge of Sustainability. Chapter 7: Renewable Energy Technologies</i></p>

Reflection

How the session went, what are main learning points and good and bad practices, quick summary of changes.

In the stationary part, it is important to have everyone in one place and to be able to divide them into different teams to carry out subtasks. It is important to summarise the results of the teams. For the online part, it is necessary to provide access to the Internet and to provide in advance (e.g. in a repository) the materials on which the pupils will work. Easy access and taking care of the technical side is a necessary element of a good organisation of this course, so that in case of a combination of forms (stationary and online), the transition is smooth and the content of the course is not lost.



Author(s): Renata Śliwa, PhD [University of the National Education Commission, Krakow]

Duration: 15 hours in total (5 hours F2F)

Title	How to produce, process, and deliver safe and nutritious food – sustainable food system in everyday life
Topic(s)	<ol style="list-style-type: none"> 1. Increasing demands on food industry - from farm to fork. 2. The concept of the sustainability of the food industry. 3. Consumer as a key agent in the transition towards sustainable food systems.
Stage of the Living Labs process	Stage 1- Define
Target Group	Students
Staff (amount and necessary skillset)	HE Teachers (needed research background in the field of circular behaviours)
Learning Objectives	The aim of the module is to explain the concept of the sustainability of food system and illustrate with real-life examples how it can be adopted into everyday-life thinking and acting.
Learning Outcomes	<ul style="list-style-type: none"> • <u>Knowledge</u>: to explain the importance of renewable energy sources in reducing fossil fuel consumption, • <u>Comprehension</u>: to understand how using renewable energy sources helps reduce air pollution as opposed to using fossil fuels as energy sources, • <u>Application</u>: to provide the achievable actions taken up governments, enterprises and households to develop renewable energy sources, • <u>Analysis</u>: to analyse the benefits of taken up renewable energy sources, • <u>Synthesis</u>: to ditch fossil fuel energy in favour of renewable energy to reduce carbon emissions, become independent of fossil fuels and increase energy • Security.
Description of the Session	<p>The entire course is divided into two parts.</p> <p>The first is organised in a traditional format (10 hours meeting between the tutor/teacher and a group of students). Students work in blocks of 45-50 minutes at the discretion of the tutor. This on-site (or on-line) part of the course contains three topics:</p> <ol style="list-style-type: none"> 1. Increasing demands on food industry – from farm to fork 2. The concept of the sustainability of the food industry 3. Consumer as a key agent in the transition towards sustainable food systems <p>The second part of the course is organised in the form of informal teaching (students work independently observing their consumer behaviour and collecting material related to this topic in their daily life).</p> <p>The main topic of the assignment is:</p> <p>Analyse your daily meals and try to group them according to the length of the delivery route. Then, make the list of those with the longest delivery route that you could give up. On the other hand, point out the ones that have the shortest delivery route and apply one-week shopping plan to get them as the only ones in your consumption basket. While applying the plan, put down your own costs and benefits as well as the costs and benefits you have presumed/spotted for more global community.</p> <p>At the same time please, try to focus on the answers for the following questions:</p> <ul style="list-style-type: none"> • Is there any possibility you would keep doing shopping based on the shortest delivery route? • What is the most serious cost you expect? • Is there any feeling that you have about the global costs and benefits, or you generally don't really care?



	<ul style="list-style-type: none"> • If so, what could possibly persuade you? <p>Students allocate 15 hours of independent work, culminating in a report describing their pro-circular attitude. The report is sent to the course tutor to be reviewed</p>
Formal and non-formal methods used	1 st Part of the course is processed in formal education (traditional method of learning with tutor/teacher and group of students). Non-formal part concerns the 2 nd Part of the course, when students organize learning by themselves and do the activities independently.
Necessary materials	<ul style="list-style-type: none"> • Personal Computer with Internet Access / Class room • PowerPoint presentations, • Paper and pencil, flipchart • Hard copy or digital version of materials [see below]
Environmental conditions	1 st Part of training in Face-to-Face formula (10 hours) should be organized in traditional class or as on-line meeting with the group. 2 nd Part of training in self-learning formula (15 hours).
Attached Resources	https://www.frontiersin.org/journals/sustainable-food-systems/ https://ciat.cgiar.org/about/strategy/sustainable-food-systems/ https://www.unscn.org/en/topics/sustainable-food-systems https://farmingfirst.org/food-systems#home https://www.ifad.org/en/agroecology-for-sustainable-food-systems https://foodwise.org/learn/sustainability/ https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/scientific-support-eu-policies/group-chief-scientific-advisors/towards-sustainable-food-system_en https://www.oecd.org/food-systems/
<i>On-line</i>	
Theoretical background to the topic	<p>The food industry is a crucial part of each country economy encompassing production, processing, and delivering safe and nutritious food for the population.</p> <p>It is widely known that the food system contributes to widespread environmental damage. Moreover, the food system compromises health and livelihoods of the global population.</p> <p>There is a need for the food industry to become more sustainable that is: to produce and consume food in a way that supports the well-being of generations. Contemporary food system fails to withstand the pressure from growing demands for food as the population becomes more numerous, and there is the need for the food industry to balance the market needs for food with its environmental and social requirements.</p> <p>The main areas of sustainability solutions comprise innovative technologies and food waste reduction. The sustainability solutions are framed within policy mechanisms to promote recovery and reduction of the loss of critical raw materials, and in particular pricing the true cost of resource consumption and losses in natural capital, closing nutrient loops, supporting local food chains aiming at less wasting.</p> <p>Sustainability in food processing means more environmental benefits by increasing processing efficiency and allowing processing of raw materials produced more efficiently. The key problem here is also sustainability footprint and the assessment of the social and environmental impact of economic investment in food production in relations to the potential risk to the survival of future generations.</p> <p>To reduce the sustainability footprint of food product is to improve the technology used in the processing. It is also to decrease the use of energy, and dominate food waste. The way the sustainability for food processing technology can be evaluated is life cycle assessment.</p>



	<p>Not less important are sustainable farming practices for reducing air, water and soil pollution, for protecting the biodiversity, for sustaining human life, for secure food supply (reducing extreme weather leading to food insecurity).</p> <p>Sustainable food production is “a method of production using processes and systems that are non-polluting, conserve non-renewable energy and natural resources, are economically efficient, are safe for workers, communities and consumers, and do not compromise the needs of future generations”.</p> <p>There are 10 principles of food industry sustainability offered:</p> <ul style="list-style-type: none"> • Safe and highly nutritious food is accessible and affordable to promote and support a healthy population; • Agricultural production beneficially contributes to the environment while efficiently using natural resources and maintaining a healthy climate, land, water, and biodiversity; • Use of animals, fish, and seafood in the food supply optimizes their well-being and adds to environmental health; • Producer equity and rural economy and development are strengthened with fair and responsible production and sourcing; • Safe and suitable working conditions are provided to support employees across the supply chain; • Food and ingredient processing generates resources and requires minimal additional inputs and outputs; • Packaging effectively protects food and supports the environment without damage and waste; • Food and ingredient waste and loss are prevented across the supply chain and what cannot be avoided is put to a positive use; • Food and ingredients are efficiently delivered across the supply chain and to the consumer; The supply chain and consumers advance sustainable business and food consumption. • To transform towards a circular economy a change in consumer behaviour, involving increased conscious consumption practices and green products' demand, is indispensable.
Additional resources	<p>Please use links from the SDG Labs Digital Gallery and the MOOC, plus additional appropriate resources:</p> <p>https://sdglabs.uom.edu.gr/sdg-labs-mooc-courses/sdg-mooc-courses-sustainable-food-system/#model-building</p> <p>https://sdglabs.uom.edu.gr/sdg-labs-mooc-courses/sdg-mooc-courses-sustainable-food-system/#sustainable-food-system</p> <p>https://sdglabs.uom.edu.gr/category/sustainable-food-system/</p> <p>https://www.youtube.com/watch?v=PjaNxTicT-I</p> <p>http://www.growingwithgrace.org.uk/about-us/</p> <p>https://www.cecop.coop/works/social-agriculture-social-cooperatives-in-italy-fostering-territorial-cohesion-and-development</p> <p>https://onlinelibrary.wiley.com/doi/book/10.1002/9781118447697</p>
Video resources	N/A
Audio resources	N/A
QUIZZ TEST [Responses at last page]	<p>1. Circular economy offers the following solutions in moving towards a sustainable food system:</p> <ol style="list-style-type: none"> a) using materials first as products b) using recycled materials c) stopping production with serious food waste d) using materials as energy e) using minimal amount of auxiliary inputs f) closing the loops at the smallest possible cycles



2. The food sector is responsible for:
 - a) over 30% of human-caused emissions
 - b) over 20% of total greenhouse gas emissions
 - c) around 10% of the world's total energy consumption
 - d) around 30% of the world's total energy consumption
3. What is sustainable consumption model:
 - a) multidimensional, hierarchical and reflective construct
 - b) encloses dimension quality of life
 - c) encloses dimension care for the environmental well-being
 - d) encloses dimension care for the future generation
 - e) encloses dimension quality of work
4. The food production, distribution and consumption
 - a) represent significant environmental impact
 - b) play a key role in reducing the overall environmental impact
 - c) contributes to the decrease of environmental impact through packaging system using appropriate packaging design
5. What is life cycle thinking?
 - a) includes environmental, social and economic impacts of a product over its life cycle and value chain
 - b) traditional focus on manufacturing processes
 - c) it is about reaching the goal of reducing a product's resource use and emissions to the environment
 - d) it is about increasing the efficiency of production and consumption throughout the product life cycle
6. The concept of "sustainable consumption behaviour" is about:
 - a) psychometric evaluation
 - b) government and social marketers movement
 - c) focus on actual sustainable consumption practices of consumers
7. Circular economy offers the following solutions in moving towards a sustainable food system:
 - a) using materials first as products
 - b) using recycled materials
 - c) stopping production with serious food waste
 - d) using materials as energy
 - e) using minimal amount of auxiliary inputs
 - f) closing the loops at the smallest possible cycles
8. The food sector is responsible for:
 - a) over 30% of human-caused emissions
 - b) over 20% of total greenhouse gas emissions
 - c) around 10% of the world's total energy consumption
 - d) around 30% of the world's total energy consumption
9. What is sustainable consumption model:
 - a) multidimensional, hierarchical and reflective construct
 - b) encloses dimension quality of life
 - c) encloses dimension care for the environmental well-being
 - d) encloses dimension care for the future generation
 - e) encloses dimension quality of work



Additional Literature	<p>Scientific papers (on-line available):</p> <p>de Canto N. R., Grunert K. G., De Barcellos M. D., Circular Food Behaviors: A Literature Review, <i>Sustainability</i> 2021, 13, 1872, http://doi.org/10.3390/su13041872.</p> <p>Jurgilevich A., Birge T., Kentala-Lehtonen J., Korhonen-Kurki K., Pietikainen J., Saikku L., Schosler H., Transition towards Circular Economy in the Food System, <i>Sustainability</i> 2016, 8, 69, https://doi.org/10.3390/su8010069.</p> <p>Quantification of Sustainability Indicators in the Food Sector, ed. Subramanian Senthilkannan Muthu, series title: <i>Environmental Footprints and Eco-design of Products and Processes</i>, Springer Nature Singapore Pte Ltd 2019.</p> <p>Woodhouse A., et al., Sustainability checklist in support of the design of the food processing, <i>Sustainable Production and Consumption</i> 2018, 16, p. 110-120; https://doi.org/10.1016/j.spc.2018.06.008.</p>
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Reflection

How the session went, what are main learning points and good and bad practices, quick summary of changes.

In the stationary part, it is important to have everyone in one place and to be able to divide them into different teams to carry out subtasks. It is important to summarise the results of the teams. For the online part, it is necessary to provide access to the Internet and to provide in advance (e.g. in a repository) the materials on which the pupils will work. Easy access and taking care of the technical side is a necessary element of a good organisation of this course, so that in case of a combination of forms (stationary and online), the transition is smooth and the content of the course is not lost.



Author(s): Georgios Tsaples, PhD [University of Macedonia, Greece]

Duration: 3 hours

Title	System Dynamics: Basic Definitions, Model Building and Policy Desing
Topic(s)	<ol style="list-style-type: none"> 1. Systems Dynamics, 2. Causal Relations, 3. Causal Loop Diagrams, 4. Archetypes, 5. Quantitativemodels
Stage of the Living Labs process	Stage 3 - Experiment
Target Group	Students
Staff (amount and necessary skillset)	HE Teachers (needed research background in the field of renewable energy)
Learning Objectives	Learn to understand the principles and limitations of simulation, grasp theoretical aspects like systems theory and causal loop diagrams, recognize archetypes in complex systems, and understand their behavioural patterns.
Learning Outcomes	<ul style="list-style-type: none"> • To explain the main ideas of policy modelling and policy design and introduce the methodology of System Dynamics • To understand how to represent the elements and relations of a system in a Causal Loop Diagram • To understand what are archetypes and how they can appear in real life cases • To understand the behaviour of archetypes • To understand stock and flow diagrams and the mathematical equations that govern them • To understand the behaviour of stocks, flows, delays and non-linearities
Description of theSession	<ol style="list-style-type: none"> 1. Introduction to the policy cycle and policy modelling. 2. Systems Thinking and system dynamics. 3. Causal Loop diagrams. 4. Presentation systemic archetypes. 5. Learn to understand stock and flow diagrams and their behaviour. 6. Understand how to build quantitative models. 7. Experiment with models 1-9 of the SDGLabs simulation models.
Formal and non-formal methods used	PPT and simulation models.
Necessary materials	<ul style="list-style-type: none"> • Students could have a laptop so that they can access and experiment with the simulationmodels.
Environmental conditions	N/A
Attached Resources	Download of vensim (https://vensim.com/free-downloads/)
<i>On-line</i>	
Theoretical backgroundto the topic	<p>Day 1:</p> <ul style="list-style-type: none"> - Repetition of basic definitions of System Dynamics in the form of Multiple choice questions* - Download of vensim (https://vensim.com/free-downloads/) - Illustration of how to use the software <p>The students will be asked to build on their own two models following the descriptions:</p> <ol style="list-style-type: none"> 1) Assume that a country has a Number of Houses initially equal to 4 million. These houses are demolished after an average house lifetime of 600 months. The houses are demolished equals Number of Houses/average house lifetime. In addition, the Number of Houses increases by houses that are built each year, which is equal to Houses under Construction/average time to build. The latter variable is equal to 6 months. Moreover, the Houses under construction, increases by building houses, which is equal to the Number of planned houses/ average time from planning to building (which is equal to 3 months). The initial value of



Houses under construction is building houses * average time to build. The Number of planned houses increase by the planning flow, which is equal to:

$\text{number_of_houses_demolished_each_year} + (\text{houses_gap} / \text{average_time_to_respond_to_gap})$ The initial value of the Number of planned houses is $\text{planning_flow} * \text{average_time_from_planning_to_building}$. The houses_gap equals $\text{MAX}(0; \text{desired_number_of_houses} - \text{Number of Houses})$, where $\text{desired_number_of_houses} = 4050000$. Please develop the above quantitative model and simulate it.

Do the results match the results produced by SDGLabs Model 13?

Is it ever possible that the value of the houses_gap variable be negative? Why?

- 2) Assume that the stock of the USA Renewables Industry equals to 5 units. This stock increases by the flow US industry increase, and decreases by US industry decrease. The US industry decrease equals $\text{USA Renewables Industry} * \text{industry depreciation rate}$ which is equal to 0.07. The EU Renewables Industry has exactly the same structure, with the same initial value for the stock.

In addition, the perception of the USA on the EU subsidies equals the EU Renewables industry times a fear factor of EU which is equal to 1.27.

In the opposite direction, the perception of EU on the USA subsidies equals the USA Renewables Industry times a fear factor of USA which is equal to 1.22.

Finally, the US industry increase equals the standard USA subsidies* perception of the USA on the EU subsidies, while the EU industry increase equals the standard EU subsidies* perception of the EU on the USA subsidies.

The standard USA subsidies, equals to 0.1 and the standard EU subsidies equals 0.1 Please develop the above quantitative model and simulate it.

Do the results match the results produced by SDGLabs Models 4-5?

How would you interpret the fear factor variables?

What do you think it means that on eis equal to 1.27 while the other is equal to 1.22?

What do you believe would happen if you reverse the values?

Day 2:

- Verification and validation of the models that were developed by the students.
- Sensitivity analysis, scenario analysis.
- How to interpret scenarios, how to analyse scenarios.

Day 3:

Discuss and analyse models 12-15 (the structure of the presentation should be similar to the one that the students should do).

Presentation of the projects that the students will have to perform:



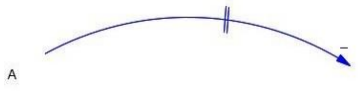
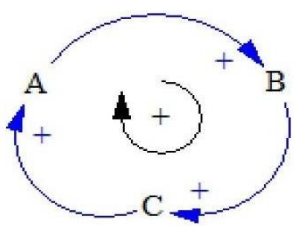
1. Make a presentation on SDGLabs simulation model 9
2. Make a presentation on SDGLabs simulation model 11
3. Make a presentation on SDGLabs simulation model 16
4. Make a presentation on SDGLabs simulation models 20-21

The students should be separated in groups and each group should take one model and:

- Write and Introduction,
- Analyse the basic simulation results Perform Scenario Analysis,
- Analyse the scenario results,

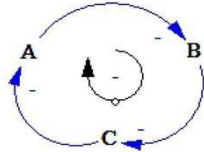
Propose policies based on the model and the objective that they have defined.**



	<p>Day 4: Discuss and analyse models 17-19 (the structure of the presentation should be similar to the one that the students should do). Advanced aspects of System Dynamics: <ul style="list-style-type: none"> - System Dynamics in research projects - System Dynamics in real life policy design - System Dynamics and Artificial Intelligence Students can ask questions about the models and their presentations.</p> <p>Day 5: Students present their projects (15 min each presentation).</p>
Additional resources	Please use links from the SDG Labs Digital Gallery and the MOOC, plus additional appropriate resources: https://sdglabs.uom.edu.gr/sdglabs-simulation-models-gallery/
Video resources	https://drive.google.com/drive/folders/1JiMqE0pf2wKM6-FJiy1X-XFgv9iCUEB
Audio resources	N/A
<p>QUIZZ TEST [Responses at last page]</p>	<p>1. Two variables are connected as shown in the figure. If variable A decreases, what will happen to variable B?</p>  <p>a) It will also decrease b) It will increase c) It will remain constant</p> <p>2. Two variables are connected as shown in the figure. If variable A decreases, what will happen to variable B?</p>  <p>a) It will also decrease b) It will increase c) It will remain constant</p> <p>3. Two variables are connected as shown in the figure. If variable A increases, what will happen to variable B?</p>  <p>a) It will decrease b) It will increase c) It will remain constant d) It will decrease after some time t</p> <p>4. Three variables named A, B, and C form a feedback loop like the one shown in the figure below. How is such a feedback loop called?</p>  <p>a) Positive feedback loop</p>

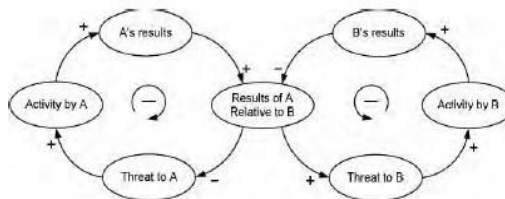
- b) Negative feedback loop
c) None of the above
5. In the figure above, if starting from variable A, we increase A, what will be the ultimate result of the loop?
a) Variable B will decrease
b) Variable C will increase
c) Variable A will get a further increase
d) None of the above

6. Three variables named A, B, and C form a feedback loop like the one shown in the figure below. How is such a feedback loop called?

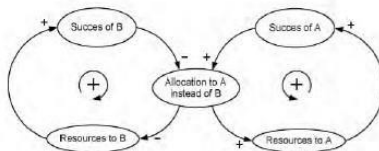


- a) Positive feedback loop
b) Negative feedback loop
c) None of the above
7. In the figure above, if starting from variable A, we increase A, what will be the ultimate result of the loop?
a) Variable B will decrease
b) Variable C will increase
c) Variable A decrease, maybe even canceling the initial increase
d) None of the above

8. What is the name of the archetype that is represented by the CLD below?



- a) Fixes that fail
b) Escalation
c) Tragedy of the commons
d) None of the above
9. What is the name of the archetype that is represented by the CLD below?



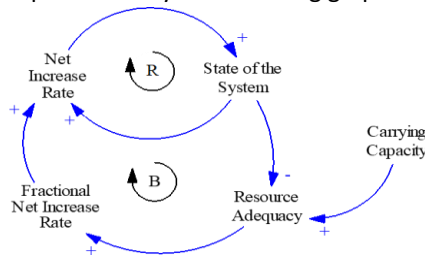
- a) Success to the successful
b) Escalation
c) Tragedy of the commons
d) None of the above
10. How would you describe the system archetype success to the successful to someone who has no knowledge of Systems Thinking?

- a) Two parties compete for the same limited resources and even a small advantage results in a more resources being allocated to the most successful party.
- b) Two or more parties aim for relative advantage over the other.
- c) Growth is followed after reaching a limit by stagnation and possibly a collapse.
- d) None of the above

11. Assume that two universities receive governmental funding based on who has the largest number of researchers. These funding is used to hire even more researchers, which makes the university even better in order to receive funding for the next year. Which systemic archetype is described here?

- a) Limits to growth
- b) Tragedy of the commons
- c) Escalation
- d) None of the above

12. What do you believe will be the behaviour of the system that is represented by the following graph?



- a) Positive feedback
- b) Negative feedback
- c) S-Shaped growth
- d) Oscillations

13. A company has 10 employees/staff and wants to hire more people. For the first 2 years, the hire 2 new persons per year, the third year they hire 5 persons per year and the fourth year they hire no one. During that period no employee left the company. What is the number of employees at year 5?

- a) 10 people
- b) 12 people
- c) 19 people
- d) None of the above

14. A company has 10 employees/staff and wants to hire more people. Management has decided to set a goal of hiring 20 extra people in the next 3 years, in other words reaching 30 employees in 3 years. How many people will be hired each year will depend on the actual number of employees that work in the company. Based on that description, what will be the hiring rate behavior?

- a) Decreasing
- b) Increasing
- c) Increasing but with a lower rate as years pass
- d) None of the above

15. Global temperature increases due to radiative forcing caused by



	<p>atmospheric greenhouse gas concentration that is initially driven by anthropogenic greenhouse gas emissions. Higher atmospheric temperatures increase the potential for forest fire making forest fires more frequent, in particular due to climate change induced drought (IPCC,2019). Forest fires release CO₂, increasing GHG concentrations and, hence, global temperature, which further increase the potential of forest fire. What type of feedback loop is the one described?</p> <ol style="list-style-type: none"> Negative or Balancing Feedback Loop Positive or Reinforcing Feedback Loop Feedback Loop that generates s-shaped behavior None of the above <p>16. Assume that a city gets its water from a water tank/reservoir. The higher the population of the city the higher the demand for water. As the demand increases, so does the water usage by the citizens which reduces the water level in the tank/reservoir. Assuming that the city suffers from lack of rain and that the citizens do not have any other means of drinking water, the mayor decides that as the water level in the reservoir falls the price of the water must increase which decreases the overall demand. What type of feedback loop is the one described?</p> <ol style="list-style-type: none"> Negative or Balancing Feedback Loop Positive or Reinforcing Feedback Loop Feedback Loop that generates s-shaped behavior None of the above <p>17. A country has a certain Number of researchers and innovators. These people do research and produce a certain Number of scientific papers. These papers after a delay are translated to Devices and services, which give to businesses ideas to create new opportunities to sell these devices and services. Consequently, the Economic activity of the country increases, which means that the country's welfare will increase. An increased welfare means that the funding for research and innovation will increase which will give the opportunity to new researchers and innovators to work. What type of feedback loop is the one described?</p> <ol style="list-style-type: none"> Negative or Balancing Feedback Loop Positive or Reinforcing Feedback Loop Feedback Loop that generates s-shaped behavior None of the above <p>18. Suppose that a company wants to reduce the amount of paper that is using for its operations. To do so, they increase the number of electronic devices and services that they use. Thus, the use of an increased number of electronic devices and services reduces the amount of paper. At the same time, the increase in the number of electronic devices and services increases in the short term the cost of the company. Furthermore, to use these electronic devices and services the company must train their employees with appropriate training programs which further increases the cost. Finally, the use of that many electronic devices increases the use of electricity which further increases the cost of the company. Which of the statements below is correct?</p> <ol style="list-style-type: none"> The main characteristic of the above description is that it contains a positive/reinforcing loop that leads to exponential increase of cost The main characteristic of the above description is that it contains a negative/balancing loop that leads the system to an equilibrium The main characteristic of the above system is that it contains no feedback loops, it is linear and as a result it cannot be considered as
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	<p>a Systems Thinking description</p> <p>d) None of the above</p> <p>19. The unit of time in a model concerning the large-scale introduction of electrical vehicles (EVs) is expressed in <i>month</i>. The production capacity of a company that produces EVs is modelled as a stock variable with units expressed in $EV=month$. The enormous growth of the expected demand for new EVs leads to an increase of the production capacity of EVs. What unit needs to be used for this increase of the production capacity?</p> <p>a) $\frac{EV}{month}$</p> <p>b) $\frac{EV*month}{month}$</p> <p>c) $\left(\frac{EV}{month}\right)^2$</p> <p>d) $\frac{EV}{month^2}$</p> <p>20. The behaviour of a stock variable is expressed by a differential equation?</p> <p>a) True</p> <p>b) False</p> <p>21. In Systems Thinking it is assumed that exogenous variables and data determine the behaviour of the system under study.</p> <p>a) True</p> <p>b) False</p> <p>22. If a feedback loop contains 1 (one) negative link between two of its variables then the feedback loop is considered positive/reinforcing.</p> <p>a) True</p> <p>b) False</p> <p>23. In Systems Thinking we are more concerned with the exact prediction of numbers or the precise reproduction of a real world system, rather than understanding how the internal structure of the system can affect its behaviour over time</p> <p>a) True</p> <p>b) False</p> <p>24. Complex issues are often characterized by more than one archetype.</p> <p>a) True</p> <p>b) False</p> <p>25. During the Cold War, the world's superpowers – USA and the Soviet Union – were engaged in an arms race especially concerning nuclear weapons. The larger the number of nuclear weapons manufactured by USA, the larger the threat that the Soviet Union felt, which made their leaders to order the development of new and more Soviet nuclear weapons to match the USA power. However, the development of Soviet nuclear weapons made the perceived threat to USA greater which forced them to develop even more nuclear weapons. What kind of systemic structure is the one described?</p> <p>a) Balancing feedback loop</p> <p>b) Two feedback loops that result in S-shaped growth</p> <p>c) Reinforcing loop that leads to escalation</p> <p>d) The description does not contain systemic structures</p>
Additional Literature	

Structure of the Project

1. Introduction

It contains the following:

- a) The general area of the problem (for example, urban development and stagnation)
- b) A few details on how the literature has dealt with the problem (for example, the problem of urban regeneration has been dealt in system dynamics.... Researcher A has found that....). In this part, only a few papers and conclusions are mentioned
- c) The gap that you found in the literature: what interests you and has not been dealt in the research before (for example: "However, no work has dealt so far with the problem of carbon emissions from transportation and quality of air in cities" or "No work has dealt so far with the modelling of the transportation system and its effect on emissions for the city of Thessaloniki")
- d) State your research question: For example, "The objective of the current report is to analyse a Systems dynamics model to understand the dynamics of....". The research question should address the gap that you identified before or at least one aspect of it.

2. Methodology and Model Structure

In this section you write the following:

- a) You write a few things about Systems dynamics and why you think that the methodology is appropriate to address your research question. You can take ideas and elements from the slides that we discussed in the class
- b) You present the variables, causal links among the variables and final CLD of your model. Please do not forget:
 - Justify why you used the particular variables,
 - Justify why you created the particular causal links etc. The justifications could be from: the literature, interviews with experts, reports from public organizations (like the UN) etc.

3. Results

In this section you describe:

- a) The feedback loops that are created in your CLD
- b) What is the potential behaviour of the CLD based on the feedback loops that you identified.
- c) Where could potential policies be applied to solve a particular problem in your CLD?
- d) analyse the basic simulation results
- e) make a scenario analysis
- f) analyse the scenarios
- g) test potential policies
- h) discuss the results of the policies

4. Conclusions

In this section you re-state your research objective, you summarize and discuss the main conclusions and you identify potential research efforts that you could do in the future with the model you have created.

5. References

Never forget to list all the papers, reports, websites etc. that you mentioned in your report.



Session Plans created by students in co-creation part of the Summer School

Author(s): Shriam Kaushik & Karla Mičkerová [Prague University of Economics and Business], Angelika Ślósarz [University of the National Education Commission, Krakow]

Duration: 1.5 hours

Title	Case study - WholeFood and Zoosa
Topic(s)	Comparing successful and failed social enterprises.
Stage of the Living Labs process	Stage 3 - Experiment
Target Group	Students
Staff (amount and necessary skillset)	1-2 lecturers, someone who has social and business experience and as a good speaker.
Learning Objectives	Learning about two companies that tried to implement circular economy and comparing success to failure.
Learning Outcomes	<ul style="list-style-type: none"> Learning from mistakes of the failure company.
Description of the Session	<p>Introduction of two companies, one successful, one failure. Questions about their previous knowledge in their country. At the end - questions how help the unsuccessful company.</p> <p>Link it to the studies, that we already have done (empathy map, value proposition canvas).</p>
Formal and non-formal methods used	Presentation and discussion
Necessary materials	Projector, PPT presentation,
Environmental conditions	Classroom
Attached Resources	https://hbr.org/2013/02/lessons-from-a-failed-social-e https://www.bonappetit.com/story/john-mackey https://www.wholefoodsmarket.co.uk/

Reflection

How the session went, what are main learning points and good and bad practices, quick summary of changes. It is good to make a comparison between two companies.



Author(s): Barbara Kurek, Weronika Pach, Dominik Nicieja [University of the National Education Commission, Krakow]

Duration: 1.5 hours

Title	Kahoot
Topic(s)	Circular economy, Green skills, social entrepreneurship.
Stage of the Living Labs process	Stage 3 - Experiment
Target Group	Students
Staff (amount and necessary skillset)	One person, professor who can make questions on Kahoot.
Learning Objectives	Learn about circular economy, activities from students.
Learning Outcomes	<ul style="list-style-type: none"> Consolidating knowledge, learning about Kahoot, participate in competition.
Description of the Session	After lecture professor start Kahoot quiz, students run it on their laptops or phones and answer the questions.
Formal and non-formal methods used	Kahoot
Necessary materials	Projector, Internet connection,
Environmental conditions	Classroom
Attached Resources	https://create.kahoot.it/share/summer-school/6171da0e-b518-4c6d-943b-42944fff2772

Reflection

How the session went, what are main learning points and good and bad practices, quick summary of changes. It is good to make a comparison between two companies.



RESPONSES

Impact entrepreneurship basics

1-a, 2-b, 3-b, 4-c, 5-c, 6-d, 7-b, 8-b, 9-d, 10-b, 11-b, 12-c, 13-c

Impact Measurement and Purpose

1-a, 2-c, 3-c, 4-c, 5-c, 6-c, 7-c, 8-c

How to consume in circular way - circular economy in everyday life

1-a,b,c,e, 2-a, 3-b, 4-a, 5-b, 6-b, 7-b

How to build in a circular way

1-c, 2-b,c, 3-a,b,d, 4-a, 5-a, 6-a, 7-b,c

Renewable Energy

1-a,c, 2-a,c, 3...(open), 4-b, 5-a, 6...(open), 7-a

How to produce, process, and deliver safe and nutritious food – sustainable food system in everyday life

1-a,b,d,e,f, 2-a,b,d, 3-a,b,c,d, 4-a,b,c, 5-a,c, 6-a,c, 7-a,b,d,e,f, 8-a,b,d, 9-a,b,c,d

System Dynamics: Basic Definitions, Model Building and Policy Desing

1-a, 2-b, 3-d, 4-a, 5-c, 6-b, 7-c, 8-b, 9-a, 10-a, 11-d, 12-c, 13-c, 14-c, 15-b, 16-a, 17-b, 18-c, 19-d, 20-a, 21-b, 22-b, 23-b, 24-a, 25-c



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