UpGameIn- Upskilling of Game Industry for more Inclusive and environmental friendly games

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Document info

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About the project

The "UpGameIn- Upskilling of Game Industry for more Inclusive and environmental friendly games" project is an initiative aimed at transforming the game industry by integrating principles of inclusivity, accessibility, and environmental sustainability into game design. Through collaborative workshops, curated resources, and vocational training, UpGameIn empowers game studios, educators, and organizations to create games that not only entertain but also address pressing global challenges outlined in the Sustainable Development Goals (SDGs). By fostering cooperation between industry stakeholders and promoting the inclusion of marginalized groups, UpGameIn is shaping a more inclusive, equitable, and environmentally friendly gaming ecosystem for the future

THE IDEA BEHIND
The UpGameIn project is driven by the recognition of the immense potential of the game industry to not only entertain but also educate and promote social change. However, this potential can only be fully realized if games are designed to be inclusive, accessible, and environmentally friendly. The idea behind UpGameIn is to address the existing gaps in game design by providing resources, training, and guidelines that empower game industry professionals and educators to create games that cater to diverse audiences and address pressing global challenges outlined in the Sustainable Development Goals (SDGs) and circular economy principles. By fostering inclusivity, promoting diversity, and considering environmental sustainability throughout the game development process, UpGameIn aims to elevate the industry and contribute to a more inclusive, equitable, and environmentally friendly gaming ecosystem.

OBJECTIVES
The project objectives are to:
- Adapt to the needs of the game industry by facilitating co-creation learning training workshops and developing a library collection of frameworks, methodologies, and guidelines for designing inclusive, accessible, and environmentally friendly games.
- Adapt vocational education and training (VET) to meet industry demands by creating guidelines for upskilling game design teams and improving the skills of VET educators to teach topics related to inclusivity, accessibility, and environmental sustainability.
- Update Game-Based Learning pedagogy and didactics to foster a more inclusive and environmentally friendly future, ensuring that educational institutions and organizations leverage games as effective tools for learning and social change.
- Empower inclusion and accessibility of vulnerable or marginalized groups in the field of games by providing resources and training that enable the creation of games playable by all individuals, regardless of their abilities, age, culture, economics, education, or race.

- Create materials, including a resource library and training resources, to disseminate partnership experiences to both VET trainers and the game industry, with the goal of developing the skills of game studios and VET organizations in creating more inclusive, equal, and accessible games that address environmental challenges and promote a circular economy.
- Enable cooperation between educational institutions, NGOs, and businesses to address key European priorities, including adaptation of VET education to labor needs, enhancement of inclusion and diversity, and the fight against environmental destruction and climate change

TARGET GROUPS

The main target groups of the project are
- Game studios and professionals
- VET organizations, educators, and professionals
- Educational organizations, especially those focused on game-based learning
- Organizations empowering vulnerable groups
- Members of partnership, game societies and groups
- Institutions or individuals interested in the project

Scope of the document

This document is addressed to VET trainers on the field of game designers and contains 4 modules on the topic of accessibility in games.

Green recommendations

The partnership of UpGameIn has agreed on a green approach to the whole project and its outputs in alignment with the EU's guidelines.

Thus, it is highly recommended and encouraged that this approach be adopted by any future game designer or stakeholder who will use the following guidelines.

Digitalise: Instead of using physical materials for the following activities, try to adjust them to digital alternatives. Some examples are: shared documents for the brainstorming of the groups, digital posters and digital presentations, to name but a few.
Recycle: Sometimes the digital form may be inconvenient or exclusionary for certain groups. In the case of physical material usage, be sure that all the expendables are both recycled and recyclable (e.g. paper)

Re-use: There is no need to print or purchase your educational material again and again. It is highly recommended to "upgrade" your reusable printed material (e.g. on Module 1 - Activity 1: 3 A4 papers to write in side M, S and R letters are needed. These papers can be laminated and reused multiple times). Another recommendation could be to purchase small whiteboards, so that the participants waste less paper for the activities.

Adjust and improvise: Every activity of these guidelines needs to be adjusted to the participants' needs and abilities. The best equilibrium between accessibility and green awareness needs to be found, depending on the country, the space, the time, and any other factor that makes the upcoming workshops unique.

LESSON _ON_ CIRCULAR ECONOMY IN GAME INDUSTRY & DESIGN

Overview

Summary

This lesson aims to deepen the understanding and importance of the concept and principles of circular economy in the context of game industry and affiliated processes, as well as the processes involved in game design and production. The industry itself is becoming more and more aware of its influence on the environment, however there is a need of promoting practices, systems and tools aimed to help in adaptation of circular economy principles and solutions into the daily operations of designers, producers and manufacturers within the industry.

The lesson is divided into 4 main topics with each developed within a specific module:

1. Understanding circular economy and its relevance to the game industry
2. Applying circular economy principles across game industry
3. Integration, Design & Future Trends
4. Module 4 – Tools, Frameworks and Case Studies

Ultimately by learning about the principles of circular economy and getting familiarized with both theoretical and practical examples of its application within the game industry, we wish - through this lesson - foster the new generation of environmentally-conscious professionals within the sector, for who, applying an adhering to the principles of circular economy will be a baseline professional behaviour.

Duration

4 modules (approx. 1 hours each).

Target audience

Trainers, educators, game designers, VET students, youth workers.

Learning Objectives

- Define circular economy, its principles in relation to the game industry

- Recognize environmental issues on each level of the industry (running the company, design, production, distribution, post-market life of products)

- Identify tools and solutions coming from circular economy which can be implemented throughout the industry

- Define hurdles preventing or limiting application of circular economy solutions withing the industry and look for countermeasures

- Evaluate best practices and real cases as inspiration for their own work.

Theoretical Background

The European Parliament provides a foundational definition, describing CE as "a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible thanks to recycling. These can be productively used again and again, thereby creating further value" (European Parliament, 2015). This definition highlights the core objective of CE: to decouple economic activity from the consumption of finite resources by designing out waste and keeping products and materials in continuous cycles of use. This model is visually encapsulated in the "butterfly diagram" developed by the Ellen MacArthur Foundation (2013), which illustrates the continuous flow of materials in two main loops: the biological cycle, where materials safely re-enter the biosphere, and the technical cycle, where products, components, and materials are recovered and restored through strategies like maintenance, reuse, and remanufacturing. This stands in stark contrast to the linear economy, which "takes in raw materials, consumes them and gains out waste," whereas a circular economy "reduces raw material input, reduces consumption and amplifies recycled waste so that discarded material is relatively small" (GRID-Arendal, 2019).

The implementation of CE is not monolithic but operates across different scales which we will try refer to game industry below (Rapowicz-Filipkiewicz M. 2015):

- **Micro Level:** which focuses on individual products, companies, and consumers. In the gaming context, this includes designing games for end-of-life (McDonough & Braungart, 2009), adopting product-as-service business models (Bressanelli et al., 2018), and influencing consumer purchasing and disposal behaviors. For a board game company, this could mean designing with modular components (Kylin Manufactory, n.d.); for a video game company, it involves creating energy-efficient software and sourcing sustainable hardware (TIGA, 2023).

- **Meso Level:** which concerns the synergy between businesses, such as in eco-industrial parks. The document cites examples from China "where businesses are deliberately placed together to enable the waste from one business to be easily transferred to another that uses that waste as a resource" (Mathews et al., 2018). While less directly applicable to the decentralized game industry, the principle can be seen in the emergence of centralized marketplaces for used games and equipment like Game Cycle and CeX (p. 24), which create a networked system for extending product lifecycles.

- **Macro Level:** This involves national, regional, or city-level implementation, focusing on the infrastructure and policy needed to support a circular system. The European Union's Circular Economy Action Plan is the prime example in the document, creating a "comprehensive framework for sustainable products" and targeting key value chains, including digital technology (European Commission, 2020). This top-down approach sets the regulatory and infrastructural stage within which micro-level actors in the game industry must operate.

A critical evolution in CE thinking is the move from a simplistic model to a sophisticated hierarchy of strategies. The document notes the "usual model of circular economy approach called the 3 R discern between three stages: reduce, reuse, recycle" (p. 3). However, it emphasizes that "other frameworks discuss circular solutions up to the 9 R: refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle or recover" (Voicu & Dumitru, 2024). This hierarchy is crucial for strategic prioritization.

The most impactful strategies are "refuse" and "rethink," which involve preventing the use of resources altogether or rethinking product concepts. In gaming, this could mean a publisher refusing to use virgin plastic or rethinking a game's distribution model to be digital-first. The middle strategies, such as repair and refurbish, maintain the value of products. The least desirable option, though still necessary, is "recycle," which recovers materials but often with significant energy expenditure and downcycling.

This framework provides a clear strategic lens for game companies to evaluate their interventions, moving beyond mere recycling to more transformative, waste-preventing actions. and though circular economy is a prevalent element of strategic systemic development, its application is still sparse chance this lesson plan.

Sources referenced:

Ellen MacArthur Foundation. (2013). The butterfly diagram: Visualising the circular economy.

European Commission. (2020). A new Circular Economy Action Plan For a cleaner and more competitive Europe.

European Parliament. (2015). Circular economy: definition, importance and benefits.

GRID-Arendal. (2019). Green approaches to closing the waste loop.

Kylin Manufactory. (n.d.). Create an eco friendly board games: What is the most sustainable and safe material.

Raptowicz-Filipkiewicz, M. (2015). Ekonomia cyrkularna – wyzwanie i konieczność zrównoważonego rozwoju. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania, 40(2), 145-154.

TIGA. (2023). The TIGA Guide to Environmental Sustainability in Game Development.

Voicu, D. D., & Dumitru, M. (2024). The state of the research on circular economy in the European Union: A bibliometric review. Cleaner Waste Systems, 7, Article 100127.

Module 0– Pre & Post Self-Assessment

General information

Duration: 5-10 min

Objectives of the activity:

- understand and visualize the actual impact of training activities
- assist VET trainers to redesign their methodologies

A set of 9 Likert scale (1-5) questions can be used in both sessions.

Materials needed

- Online survey tools (e.g. Mentimeter, Kahoot, Google Forms etc)
- Computers/smartphones/tablets

Detailed description

Preparation

The facilitator creates an online questionnaire that contains the following set of Likert scale questionnaires, one to be used in pre-assessment and a second one to be used in post assessment session.
The Likert scale is from 1 to 5 with
- 1-> not at all
- 2 -> a little
- 3-> somewhat
- 4-> quite a lot
- 5-> very much

The questionnaire is divided into 3 sections.

Section A: Knowledge and Understanding

Q1. I know the main models of circular economy (3R, 9R).
Q2. I know the main dimensions of circular economy in all areas of game industry (Design Production, Distribution, Player Engagement, End-of-Life)

Q3. I can identify barriers for implementation of circular economy in a game industry.

Section B: Application and Skills

Q4. I can apply Circular Economy principles in my own game projects.

Q5. I can integrate Circular economy features in my design and production processes (e.g., digitalization, recycle materials, low-emission hardware).

Q6. I can create and use a circular economy features checklist in the planning phase for my projects.

Section C: Attitudes and Awareness

Q7. I believe in a circular economy helping in preservation of both resources and environment .

Q8. I see implementation of circular economy in the game industry as a creative opportunity, not a limitation.

Q9. I feel confident discussing or applying circular economy practices in game design.

For the post assessment, the facilitator can create the following open-ended questions.

Q10. Which activity helped you most to understand accessibility in game design?

Q11. What is one idea or tool you plan to apply in your future projects?

Implementation

The facilitator shares the link to the questionnaire and lets participants fill it in.
An informal discussion, especially in a post assessment session, can follow.

Module 1 – Understanding circular economy and its relevance to the game industry

Learning Objectives:

1. Identify the basis of circular economy and its difference from the linear model
2. Understand the importance of circular economy in the context of the overall socio-economic situation
3. Discuss every-day examples of circular economy solutions

Theoretical background / Key Concepts:

This module is grounded in the foundational principles of the Circular Economy (CE), framing it as a necessary and systemic alternative to the dominant linear economic model. The key concepts are base for understanding its application in the game industry. The core theoretical construct is the transition from a linear economy to a circular economy.

The core theoretical construct is the transition from a linear economy to a circular economy, including models and tools.

Linear Economy: a traditional model, defined by a one-way flow of materials. It "takes in raw materials, consumes them and gains out waste" (GRID-Arendal, 2019, as cited on p. 15). This model is inherently unsustainable, leading to resource depletion, environmental pollution, and massive waste generation, as starkly illustrated by the global e-waste crisis.

Circular Economy: defined as "a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum" (European Parliament, 2015, as cited on p. 1). The fundamental goal is to decouple economic activity from the consumption of finite resources by designing out waste and keeping products and materials in use at their highest value for as long as possible.

Icbreaker Activity: "What's Your Game's Afterlife?"

Preparation: School setting (desks & chairs) or chairs/pillows for each participant, pens and paper, checking the relevance of data for activity 3 (The global E-waste Monitor 2024 – Electronic Waste Rising Five Times Faster than Documented E-waste Recycling: UN or more recent)

Time: 10 minutes

Number of participants: 6+

Goal: To personally connect participants to the concept of waste and resource lifecycles through their own gaming habits, setting the stage for the module.

Instructions:

- Ask participants to think about the last physical game item (a board game box, a console, a controller, a physical game disc, a rulebook, etc.) they no longer use.
- Pose the question: "What happened to it?" Give participants a moment to reflect.
- Using a simply asking for a show of hands, present a few options:
  - It's on a shelf, collecting dust.

   ○ I sold it or gave it to a friend.
   ○ I threw it in the trash.
   ○ It's in a box somewhere, I'm not sure.
   ○ I recycled it (if applicable)

Debriefing session

- Briefly discuss the results. Point out that most of these outcomes are part of a "take-make-dispose" model, and this activity will lead us into exploring a better way: the Circular Economy.

Educational Activity 1: Linear vs. Circular - A Geme's Journey

Time: 15 minutes

Goal: To visually and collaboratively map the difference between a linear and a circular economic model using a relatable product.

Instructions:

- Setup (5 min): Divide participants into small groups. Give each group a large sheet of paper and markers. Tell them they will be mapping the lifecycle of one of the games you'd discussed in the icebreaker.

- The Linear Model (10 min): Ask groups to draw a linear journey for the game. They should start with "The idea" and end with a final destination. Encourage them to include steps like: Manufacturing, Transportation, Retail, Use, and Disposal. They will likely draw a straight or zig-zagging line that ends in a landfill or an incinerator.

- Introducing the Circular Model (10 min). Now, ask groups to take the same game and re-draw its journey to keep it in use for as long as possible. Prompt them with questions: Could it be resold? Donated?" They should now draw a circular diagram with arrows showing reuse, repair, and recycling loops.

- Debrief (5 min): Have each group share one key difference between their two diagrams. The facilitator should summarize that the linear model ends in waste, while the circular model aims to eliminate waste by design, keeping resources in use.

Educational Activity 2: The "Butterfly Diagram" & The 9R Game

Time: 25 minutes

Goal: To introduce the core CE model ([the butterfly diagram](#)) and the strategic hierarchy of the [9Rs](#), applying them to the game industry.

Instructions:

Input (5 min):

Briefly present the "butterfly diagram" developed by the Ellen MacArthur Foundation. Explain the two main cycles: the technical cycle (reuse, repair, remanufacture, recycle) and the biological cycle (biodegradable materials returning to the earth). Then, introduce the 9R framework (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle).

The 9R Game Sorting (10 min):

Provide each group with a set of cards, each describing a specific action related to the game industry. Groups must work together to sort these action cards according to the 9R hierarchy, from most (Refuse) to least (Recycle) preferable.

Debriefing/Discussion (10 min):

Facilitate a discussion. Ask: "Why is 'Refusing' plastic better than 'Recycling' it? What are the challenges for a game company in moving up the R-hierarchy?" In which category can we take the most actions? This reinforces the strategic thinking behind CE.

Educational Activity 3: The E-Waste Crisis - Connecting the Dots

Time: 15 minutes

Goal: To use real-world data from the research to understand the socio-economic and environmental urgency of adopting CE principles, specifically in the context of gaming e-waste.

Instructions:

Data Dive (5 min)

Provide groups with a handout containing key data points extracted from "The Global E-Waste Monitor 2024".

Guided Analysis (10 min):

Groups answer the following questions based on the data in the form of short presentations:

Question 1 (Scale): What does this data tell you about the scale of the e-waste problem?

Question 2 (Connection to Gaming): How is the video game industry (consoles, PCs, VR headsets) a part of this problem?

Question 3 (Socio-Economic Context): The document mentions e-waste is handled by the "informal sector" in lower-income countries. What are the potential human and environmental risks associated with this?

Question 4 (CE Solution): Based on the 9R game, what is ONE circular economy solution that could help reduce the gaming industry's contribution to this crisis?

Share Out (5 min): Each group shares one key insight from their discussion, particularly their proposed CE solution. This activity solidifies the "why" behind the module, moving from theory to urgent, real-world application.

Module 2 Applying circular economy principles across game industry

Learning Objectives

- Analyze and compare the primary Circular Economy (CE) challenges and opportunities within the digital, physical (board game), and live game (LARP, escape room) sectors.

- Develop specific, actionable CE strategies for a game product or service using the 9R hierarchy and sector-specific frameworks.

- Evaluate the potential and limitations of digitalization as a tool for enabling circularity in the game industry.

Theoretical Background.Key concepts

This module moves from theory to application, focusing on how CE principles are operationalized differently across the game industry's diverse sectors. The theoretical underpinning is that a "one-size-fits-all" approach is ineffective; successful implementation requires sector-specific adaptation of core CE models.

Sector-Specific Material Flows: The core "butterfly diagram" model manifests differently in each sector.

Digital Games: The primary focus is on the technical cycle of hardware (consoles, PCs, VR) and the dematerialization of software. Key challenges include planned obsolescence, energy consumption of data centers and devices, and the generation of electronic waste (e-waste), as documented by the Global E-waste Monitor (2024). Strategies here involve designing for durability, promoting refurbishment, and shifting to digital distribution and cloud gaming to reduce physical materials.

Physical Games (Board Games): This sector is defined by its materiality. The primary CE levers are in the production and end-of-life phases. Challenges include the use of non-recycled plastics, unsustainable paper/paperboard leading to deforestation, and problematic inks and coatings (Victory Conditions, 2024). The theoretical application focuses on material innovation (e.g., bagasse fiber, bamboo, recycled plastics), design optimization (simplified/modular design), and packaging reduction (Kylin Manufactory, n.d.; Rawstone Games, 2025).

Performative Games (LARPs, Escape Rooms): This sector's relationship with CE is unique due to its performative and often temporary nature. Its theoretical foundation is deeply rooted in the "reuse" and "repurpose" tiers of the 9R hierarchy. The guiding framework is less industrial and more akin to sustainable theatre production, as outlined in the Theatre Green Book (2024). The core principle is a cultural shift in thinking about resources, captured by the question: "Can I do

without it? Can I use or adapt something from storage? Can I make it from salvaged materials?"
(Theatre Green Book, 2024, p. 21).

Digitalization as a Dual-Edged Sword: The module also explores the role of digitalization. While it offers powerful dematerialization benefits (e.g., digital game downloads, virtual tabletops for RPGs), it is not a panacea. It introduces new challenges, including the energy footprint of digital infrastructure and the risk of exacerbating digital fatigue, which can increase the appeal of physical, resource-intensive analog experiences (Business Wire, 2024).

Icebreaker Activity: "What's Your Sector's Biggest CE Challenge?"

Time: 5 minutes

Goal: To quickly engage participants and surface their intuitive understanding of the different challenges faced by each game sector.

Instructions:

- Divide participants into three groups: Team Digital, Team Physical, and Team Performative.
- Pose the question: "In one word or a short phrase, "What is the biggest circular economy challenge for your assigned sector?"
- Ask each group to provide 3 most relevant answers
- Each team discusses for 2 minutes and then shares their word/phrase (e.g., Team Digital: "E-waste"; Team Physical: "Plastic"; Team Performative: "Single-use scenography").
- The facilitator notes these on the board, highlighting that while all are part of the game industry, their paths to circularity start from very different places.

Activity 1: The 9R Sorting Race

Time: 15 minutes

Goal: To rapidly reinforce the 9R hierarchy and brainstorm its sector-specific application.

Instructions:

(3 min) - Setup & Input: Briefly recap the 9Rs (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle). Divide participants into three groups: Digital, Physical, and Performative.

(7 min) - The Race: Give each group a set of the same 9-12 pre-written "Action Cards" (each describing a simple CE action. Their task is to work within the groups to sort the cards from the most impactful 'R' to the least impactful 'R' for their assigned sector with the hierarchy being established by them. The first group to correctly sort their set wins.

(5 min) - Debrief: Facilitate a quick discussion. Ask: "Team Digital, which 'R' was most common for you? Team Performative, was 'Repurpose' a key strategy?" Highlight how the same action (e.g., "Use digital manuals") can be a high-impact 'Rethink' for Physical games but a standard practice for Digital. Ask them also how they come up with the hierarchy and let them explain their choices.

Activity 2: Sector-Specific Speed Consulting

TIme: 15 minutes

Goal: To apply the 9R framework to generate quick, actionable ideas for different sectors.

Instructions:

(2 min) - Setup: Groups remain in their sector-specific teams. Assign each group a simple "Problem Statement":

- Digital: "Our new gaming headset breaks easily and cannot be repaired."
- Physical: "Our board game's box is half-empty and uses plastic shrink wrap."
- Performative: "We need 20 'ancient-looking' books for a weekend LARP."

(8 min) - Brainstorm: Using the 9R framework, groups must brainstorm at least two concrete solutions to their problem. They should identify which "R" each solution uses.

(5 min) - Pitch: Each group has 60 seconds to pitch their best solution to the whole class. The facilitator highlights a key insight from each pitch (e.g., "Notice how the Live game solution focused on 'Reuse' from a thrift store, not buying new").

Activity 3: The Digital Dilemma Vote

Time: 10 minutes

Goal: To critically evaluate the role of digitalization in a CE.

Instructions:

(2 min) - Pose the Scenario: Present the following: "A board game publisher wants to become more circular. The CEO suggests: *'Let's stop making physical games entirely and only release digital versions on tablets and phones.'*"

 For the sake of understanding the process you can use a well-known title such as "Monopoly" for example.)

(5 min) - Discuss and Decide: In their sector teams, participants discuss: Is this a perfect CE solution, or does it create new problems? They must prepare one argument For and one argument against the CEO's plan.

(3 min) - Vote and Summarize: Take a quick vote: "Who thinks this is a net-positive CE move?" Based on the arguments heard, the facilitator summarizes that digitalization is a powerful tool (it *reduces* physical waste) but not a silver bullet (it shifts environmental impact to e-waste and energy use, and doesn't work for all game types). This provides a nuanced conclusion to the module.

Module 3 Integration, Design & Future Trends

Learning Objectives

- Integrate Circular Economy (CE) principles into a holistic game design and business strategy.
- Design a basic concept for a game that is sustainable in both its production and its thematic content.
- Evaluate strategies for educating and engaging players in circular practices.

Theoretical background/Key Concepts

This module focuses on synthesizing previous knowledge and looking toward the future. The core concepts are integration, transformative design, and community engagement.

Holistic Integration: True circularity requires action beyond a single department. It involves aligning General Business Strategy (green partnerships, carbon offsetting), Design (simplified/modular design, material optimization), Production (sustainable materials, green manufacturing), Distribution (efficient logistics, digitalization), and End-of-Life/Post-Use (resale markets, recycling programs) into a coherent plan.

Transformative Game Design: This concept involves creating games that are not just "less bad" for the environment in their production, but are actively "good" in their content. These "eco-games" use their unique power as a medium to drive awareness and inspire pro-environmental behavior in players. This follows a deliberate design framework, considering purpose, audience, and key messages.

Player Education & Community Loops: The circular model extends to the consumer. Educating players on sustainable practices (e.g., repair, resale, conscious consumption) and fostering community hubs (game libraries, cafes, swap meets) creates a "circular network" that keeps products in use and strengthens the ecosystem around games.

Icebreaker Activity: "Green or Greenwash?"

Time: 5 minutes

Goal: To quickly engage critical thinking about holistic sustainability claims versus superficial marketing.

Instructions:

Present participants with a series of quick, fictional statements from game companies by proclaiming the to the group.

Participants give a "thumbs up" for a genuinely holistic strategy (Green) or a "thumbs down" for a potentially superficial or misleading one (Greenwash).

"We've removed all plastic from our board game box." (Pause for vote) → Green. (A concrete design/production change).

"We're a carbon-neutral company because we buy offsets." (Pause for vote) → Potential Greenwash. (While potentially positive, it's an end-of-pipe solution that doesn't prove a reduction in their actual footprint; must be scrutinized).

"Our new game is about ecosystem restoration, and we're using the profits to plant trees." (Pause for vote) → Green. (Integrates theme with action).

"Our new video game is delivered via a digital download." (Pause for vote) → It's complicated! (Leads to a reduction in physical waste but doesn't address the energy footprint of digital distribution or hardware).

Briefly conclude that Module 3 is about moving beyond single actions to integrated, authentic strategies.

Activity 1: The Sustainable Game Canvas

Time: 15 minutes

Goal: To integrate CE principles across different aspects of a game's lifecycle in a structured, timed format.

Instructions:

(2 min) - Setup: Divide participants into small groups. Provide each group with a large sheet of paper divided into three sections: Design/Production, Distribution, Player Engagement & End-of-Life.

(10 min) - Brainstorm Fill: Assign each group a game type (e.g., a board game, a digital game, or a LARP). Their task is to quickly brainstorm and write down at least one concrete CE idea for each of the three sections on their canvas.

Design/Production: (e.g., modular design, FSC-certified paper, no plastic).

Distribution: (e.g., digital rulebooks, partnership with carbon-neutral shipping, local manufacturing).

Player Engagement & End-of-Life: (e.g., in-game messaging about sustainability, a take-back program for old components, a platform to resell the game).

(3 min) - Gallery Walk: Groups quickly post their canvases and do a 1-minute silent gallery walk to see the integrated ideas from others. The facilitator highlights one example of strong integration.

Activity 2: The "Eco-Game" Pitch Sprint

Time: 20 min

Goal: To apply the concept of transformative design by creating a basic game concept that is sustainable in both form and content.

Instructions:

(2 min) - Input: Introduce the concept of "Transformative Design" – designing games where the *content* (theme, mechanics) also promotes sustainability.

(13 min) - Concept Creation: In their groups, participants have 8 minutes to create a pitch for a new "Eco-Game." Their pitch must include:

- Game Title & One-Sentence Concept
- The "Eco-Theme": What sustainability issue does it tackle? (e.g., recycling, rewilding, clean energy).
- The "Eco-Mechanic": One core game mechanic that reflects the theme (e.g., players trade resources in a closed loop, manage an ecosystem).
- One Circular Production Choice: (e.g., "We'll publish it as a print-and-play to avoid shipping")

(5 min) - Rapid Fire Pitches: Each group has 60 seconds to pitch their Eco-Game to the "investors" (the rest of the class). The class votes by raising hands for the most compelling idea.

Activity 3: Building the Circular Community

Time: 10 minutes

Goal: To brainstorm and evaluate strategies for engaging players in circular practices.

Instructions:

(2 min) - Set the Scene: Pose the problem: "You've designed a great, sustainable game. How do you ensure players don't just throw it away at the end of its life, thus breaking the circle?"

(5 min) - Solution Brainstorm: In groups, participants brainstorm a "Player Engagement Plan" with two parts:

- Part A: An "In-Game" Action (e.g., an achievement for reading the digital manual, a character who teaches repair skills).

- Part B: An "Out-of-Game" Action (e.g., a URL in the rulebook to a resale marketplace, a partnership with a local game cafe for a "swap meet," a tutorial on how to compost the game if it's made of biodegradable materials).

(3 min) - Share & Conclude: Groups share one standout idea. The facilitator concludes by emphasizing that a circular economy isn't just about making things, but about fostering a culture and community that values longevity, reuse, and shared resources, closing the loop for the entire game lifecycle.

Module 4 – Tools, Frameworks and Case Studies

Learning Objectives:

- Identify and differentiate between key industry-specific tools and frameworks for implementing circular economy (CE) principles.
- Analyze real-world case studies to deconstruct the application and impact of CE strategies in the game industry.
- Select an appropriate tool or framework to address a specific sustainability challenge in a gaming context.

Key Concepts

This module moves from theory and strategy to practical application. The focus is on the resources and real-world examples that enable change.

- Frameworks as Strategic Guides: Tools like the Green Games Guide (for tabletop games) and the Theatre Green Book (for live games) provide structured, tiered approaches (e.g., Basic, Intermediate, Advanced) to sustainability. They help companies benchmark their current state and plot a progressive path forward, moving from simple reuse to certified net-zero operations.

- Tools for Action and Measurement: Resources like the Xbox Sustainability Toolkit offer developers concrete actions and metrics to reduce the

carbon footprint of their games and operations. These are practical instruments for implementing change at a project level.

- Learning from Case Studies: Analyzing the successes and challenges of pioneers (e.g., Haba's material choices, the Board Game Road's reforestation, the rise of GameCycle) provides invaluable, grounded insights. It demonstrates the viability of CE strategies and helps others avoid common pitfalls.
- The "Why" Behind the Tool: The ultimate goal is not just to use a tool, but to foster the underlying circular mindset—a cultural shift towards always asking, "Can I do without it? Can this be used again?" before consuming new resources.

Icebreaker Activity: "Toolkit Toss-Up"

Time: 5 minutes

Goal: To quickly introduce the concept of different tools/frameworks and activate prior knowledge in a fun, physical way.

Instructions:

Explain that you will name a sustainability challenge. Participants must quickly decide which "tool" from a list is best suited for it.

Write three "Tools" on the board: A. Green Games Guide, B. Theatre Green Book, C. Xbox Toolkit.

Call out the challenges:

- "Designing a board game with a lower plastic footprint." (Answer: A)
- "Measuring the energy efficiency of your cloud-based video game." (Answer: C)
- "Building a set for a LARP using only salvaged materials." (Answer: B)

- "Creating a tiered sustainability plan for a tabletop game company."
  (Answer: A)

This rapid-fire activity highlights that different problems require different, specialized tools.

Play session: Sampah

Time: 40 minutes

Goal: To play a live game and analyze its design, production and facilitation in the content of circular economy solutions include

Instructions:

<u>(10 mins) Introduction</u>

Prepare beforehand as per design document
Read out the game setting and its rules
Discuss safety mechanics and other elephant systems
Distribute character sheets

(20 minute) Play

Facilitate the play session as per scenario's guidelines.

(10 minutes) Debrief

Ask the following questions:

- What sustainable solutions were part of the game?
- How does the game refer to the solutions contained within "The Theatre Green Book"?

- Point out sustainable solutions and decisions made during the design phase/the production phase phase

  - The setting about a tribe living off straps tossed down by the inhabitants above (design)
  - The use of recycled material and trash in character creation (design/production)
  - Design document and other materials available online (design)
  - Adaptation of the venue to the news of the game through reusable materials (production)
  - Online distribution of materials/print-outs on re-used paper (production)

Appendix 1 Cards for Activity 2 Module 1

A game publisher stops including plastic miniatures in their new board game releases.	A board game is designed with a simplified, modular system, using 30% fewer total components than the industry standard for its genre.	A player fixes a sticky button on their game controller using a repair kit and an online tutorial, instead of buying a new one.	An escape room designer takes old furniture from a thrift store and modifies it to become a puzzle cabinet or part of the set décor.
A video game company shifts its business model to focus on digital game downloads and streaming services instead of selling physical discs.	A player sells their old video games on a second-hand marketplace	A company collects old smartphones, professionally cleans them, installs a lightweight OS, and resells them as affordable, dedicated handheld game devices.	A LARP organizer takes old, non-recyclable packing foam and carves/paints it to look like magical landscape rocks or ruins.
A municipal facility collects old gaming consoles, grinds down the plastic casings, and processes them into raw plastic pellets to make park benches.	A board game manufacturer replaces petroleum-based plastic components with ones made from corn starch or bagasse fiber (sugarcane waste).	A publisher offers a "buy-back" program where players can return their used game cartridges for a discount on a new one. The returned cartridges are cleaned, tested, and resold.	A company decides to use only digital PDFs for game rules and character sheets, eliminating all paper manuals from their physical game boxes.

A game publisher decides to stop including plastic miniatures in their new board games	A company offers a service where you stream games instead of buying physical discs.	A board game is designed to use a single deck of cards for multiple game modes, reducing component count.	Selling your old video games on a platform like CeX.
Fixing a broken console controller instead of buying a new one.	A company collects old smartphones, updates their software, and resells them as dedicated handheld game devices.	Using old board game boxes as storage containers for craft supplies.	Melting down plastic sprues from war game miniatures to create new raw material
A publisher decides to never use plastic shrink wrap on game boxes, opting for paper bands.	A company policy bans the use of virgin, non-recycled plastics in all new products	A LARP designer decides a prop is unnecessary and cuts it from the design entirely.	A video game studio refuses to create special "collector's editions" filled with plastic trinkets.

A board game company shifts its model to offer "game libraries" via subscription, where players borrow instead of own.	A video game is designed from the ground up to be cloud-streamed, eliminating the need for powerful local hardware.	A company reimagines its game as a primarily digital app that enhances a minimal physical board.	A publisher decides to sell RPG rulebooks primarily as print-on-demand to avoid overproduction and pulping.
Designing a board game with a single, multi-purpose deck of cards instead of several specialized ones.	Minimizing the size of a game box to exactly fit the components, eliminating "air packaging."	Using energy-efficient software and servers for game development and online play.	Implementing a "work-from-home" policy to reduce the carbon footprint of employee commuting.
A player buys a used board game from a thrift store or online marketplace.	A library offers a collection of board games for patrons to borrow and return.	An escape room company stores and re-uses modular set pieces across different room themes.	A LARP group maintains a shared "costume closet" for participants to use event after event.

A video game company releases detailed, open-source repair guides for its consoles to extend their lifespan.	A board game publisher offers replacement parts (e.g., a single card or token) for a small fee instead of requiring a whole new game.	A local game cafe offers a "clinic" where players can learn to fix minor damage to their game boxes and components.	A company designs game components to be easily disassembled for cleaning and repair.
A specialized company cleans, tests, and re-certifies used gaming laptops for resale with a warranty.	A console manufacturer offers an official "trade-in" program where old consoles are refurbished and resold as certified pre-owned.	An arcade restores vintage arcade cabinets with new screens and components while keeping the original housing and art.	A company buys back used trading cards, professionally cleans and grades them, then resells them.
Old smartphone screens are harvested and integrated into new, dedicated handheld gaming devices.	Plastic from discarded game cases is collected, processed into high-quality filament, and 3D-printed into new game components.	Circuit boards from obsolete gaming hardware are broken down, and precious metals are recovered to make new components.	A company takes back broken VR headsets, extracts the lenses and electronics, and builds them into new models.

An old board game board is painted over and turned into unique wall art.	Worn-out game dice are collected and turned into mosaic tiles for a community tabletop.	Outdated fantasy LARP costumes are cut up and sewn into pouches, bags, or costume accents for future events.	Cardboard sprues from miniatures are painted and used as scatter terrain or architectural details in tabletop wargaming.
Sending old, non-functioning gaming keyboards to a facility where the plastic is shredded and melted for use in park benches.	Putting paper-based game boards and rulebooks into the municipal paper recycling stream.	Participating in a municipal e-waste drive to collect and process old gaming consoles for raw material recovery.	A manufacturer uses a percentage of post-consumer recycled (PCR) plastic in the injection molding of new game miniatures.

Appendix 2 Handouts for Activity 3 Module 1

"62 billion kg of e-waste generated in 2022."
"Only 13.8 billion kg is documented as formally collected and recycled."
"Europe produces the biggest quantity of e-waste per capita."

Appendix 3 Cards for Activity 1 Module 2

Refuse plastic collectible edition.	Rethink distribution via cloud streaming.	Reduce energy via software design
Reuse console via resale	Repair a damaged controller	Recycle e-waste.
Buy-back damaged equipment for refurbishment	Refurbish laptops	Refuse plastic shrink wrap
Rethink materials to bagasse fiber	Reduce component count via modular design	Reuse game via resale/donation
Make a game playable again by ordering replacement parts	Use recycled/FSC paper	Recycle paper waste
Rethink/refuse new scenery by choosing the right venue	Reduce paper usage via the use of digital tools	Repair and reuse costumes
Repair and reuse set pieces.	Repurpose pallet wood for scenography and props	Repurpose thrift-store furniture

Appendix 3 9R Framework for Activity 2 Module 2 & Activity 1 Module 3

Appendix 4 Table for Activity 1 Module 3

Design	Production	Distribution	Player Engagement	End-of-Life