

TEACHER'S GUIDE

MODULE 2

www.innovating4earth.eu



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THE *EARTH* PROJECT

The EARTH (Ethical and Responsible Transportation and Handling) project's mission is to enhance the sustainability focus on logistics through integrating digital approaches to innovation management practices.

Teacher's Guide & OERs

The **Teacher's Guide & Open Educational Resources (OERs)** support teachers in integrating **sustainability and innovation management** into logistics curricula. These resources empower teachers, enhance student learning, and align education with industry needs and the **Sustainable Development Goals (SDGs)**.

Purpose of the Teacher's Guide

The guide provides a **structured approach** to using OERs, offering an overview of available materials and guidance on selecting the most suitable resources. It equips teachers with **pedagogical strategies** to enhance student engagement and maximise the impact of sustainability-focused learning. It also explains the connection between SDGs, OERs, and logistics case studies in addressing **global challenges** and **sustainability guidelines**. Clearly defined learning objectives related to innovation management and SDGs ensure that teachers can confidently integrate digitalised innovation management and sustainability into their logistics courses.

EARTH's OERs

The EARTH Project's OERs offer **practical, interactive, and ready-to-use materials**, including **problem-based learning case studies, real-world scenarios, worksheets, and multimedia content**. Designed to bridge theory and practice, these resources foster **hands-on learning** and **critical thinking**. They are available for download via the project website. By using the innovation process framework, students explore how **digital tools support innovation management practices, implement SDGs, and gain** a deeper understanding of sustainability in logistics.

Impact & Benefits

The Teacher's Guide and OERs aim to:

- ❑ **Empower Teachers:** Teachers gain confidence in integrating **SDGs into innovation management**, supported by practical tools and structured guidance.
- ❑ **Develop Students:** Learners actively engage with **real-world logistics challenges**, building critical thinking and problem-solving skills.
- ❑ **Institutional Alignment:** Curricula evolve to align with **SDG frameworks, innovation management strategies, and industry sustainability goals**.

By embracing digital tools and **innovative teaching methodologies**, this initiative **supports the transition** toward a more sustainable and technologically advanced logistics sector.



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This Problem-Based Learning Open Educational Resource, a part of the Erasmus+ Cooperation Partnerships Project “Ethical and Responsible Transportation and Handling”, was conceptualised and produced by Maynara Furquim and Paula Schüppenhauer, FH Münster University of Applied Sciences, in collaboration with the EARTH Project Partnership.

01

INTRODUCTION



INTRODUCTION

Welcome to the EARTH Teacher's Guide

Welcome to the EARTH Teacher's Guide, designed to **support teachers** in delivering engaging, innovative, and sustainability-focused content on a digitally facilitated innovation management process for logistics. This guide is part of the EARTH OERs, designed to equip teachers with **practical tools, case studies, and methodologies** that inspire students and foster critical thinking in sustainable logistics.

Why Sustainable Logistics Matters

Sustainable logistics play a vital role in addressing **global environmental challenges**, reducing carbon footprints, and promoting resource efficiency. This guide equips teachers to inspire students to become **future leaders** who can drive innovative, sustainable solutions in the logistics industry. This guide is to empower teachers to deliver dynamic lessons that not only educate but also **motivate students** to think critically about the role of innovation in shaping a more sustainable future.

Purpose of this Guide

The goal of this guide is to help teachers seamlessly **integrate EARTH's resources** into their lessons, whether in-person, online, or in a hybrid format. It provides a clear framework for navigating the course content, selecting suitable materials, and applying recommended teaching strategies. **Designed to be flexible and adaptable**, the materials can be tailored to different teaching styles and classroom needs rather than being followed rigidly. By incorporating **real-world case studies, digital tools, and problem-based learning activities**, this guide bridges the gap between theory and practice, making learning both meaningful and impactful.

What to Expect

■ Module Structure

This section outlines the structure of the EARTH modules, detailing the components of each module – introduction, exercises, and evaluation – designed for flexibility and adaptability across different teaching contexts.

Module 1 – Warm-Up Exercise

Here, an overview of Module 1 is presented, focusing on the fundamentals of innovation management applied to logistics contexts.

Module 2 – Innovation Management Digitalisation and Sustainability

This section explores the application of innovation management, with a focus on identifying sustainability challenges and applying innovation management processes to address them.

Module 3 – Real-Life Challenge

This module focuses on hands-on activities within the innovation management stages, teaching students how to utilise digital tools to implement innovative and sustainable logistics solutions.

The module sections include week-by-week descriptions, learning outcomes, and suggested activities to engage students in critical discussions.

■ Additional Resources

A collection of supplementary materials, including external resources and case studies, designed to support the lectures and enhance classroom discussions.

Teachers are encouraged to regularly **review and adapt the OERs materials**, including language, imagery, and case selection, to help **eliminate implicit biases** and ensure the OERs' content **remains inclusive**. The EARTH Good Practice Compendium, for instance, supports this by highlighting diverse models and inclusive innovation strategies. Using these examples challenges common stereotypes and broadens students' understanding of the logistics sector.

02

MODULE

STRUCTURE



MODULES STRUCTURE

The **EARTH Open Educational Resources (OERs)** comprise three modules, varying in length, that complement one another. While developed as a cohesive programme, the modules are designed to be **flexible and adaptable** to meet the **specific needs** of both **teachers and students**. Each module can be **implemented independently**, allowing teachers to select the modules that best align with their students' needs and learning requirements.

The **duration** of each module is also **flexible**, with time management left to the discretion of the teacher. Although recommended durations are provided, some modules may have a more intensive workload and could require additional support for students.

Each module contains a specific relevant **set of resources**:

- 1 Introduction:** Clear learning objectives, recommended resources for pre-session reading or viewing, session slides (Slide Deck), and materials to work on during the session (Worksheets).
- 2 Exercises:** Detailed instructions for both students and teachers, along with examples, task requirements, templates, and worksheets to guide the activities.
- 3 Evaluation:** An explanation of the evaluation criteria, along with evaluation templates (if applicable) and any online questionnaires or similar assessment tools.

All modules incorporate **problem-based learning activities**, where students will engage with real-world problems in a collaborative environment. This approach **enhances** their critical thinking and problem-solving skills while bridging the gap between theory and practice.

The following section outlines a week-by-week plan for the module, accompanied by detailed descriptions to guide its implementation, which teachers can adapt as needed.



INDIVIDUALISING MODULES

Adapting Content to Fit Your Teaching Style

As mentioned, the **modules** are designed to be **flexible and adaptable** to different teaching styles, learning environments and needs. All modules and the **individual weeks** within them **can be used separately** – it only requires some adaptations to ensure the content is plausible and without open or missing aspects. They can be **delivered** from a complete semester course format to an 8-hour course, a workshop (extracurricular or in-course), or spread through class discussions – the teachers choose.

The steps presented below serve as **examples of how you can adapt** the content to meet specific needs, tailoring it to particular objectives, time constraints, and student requirements.

Step 1: Define your Teaching Objectives

- ☐ **Align** the module/weeks' content with the course/class learning goals.
- ☐ **Identify** which parts of the module are essential and which can be adjusted or omitted based on the curriculum and objectives for the class(es).
- ☐ **Consider** how the module/week supports broader educational frameworks or competencies, particularly in diversity, equity, and inclusion (DEI) principles.

Step 2: Adapt the Module Duration

- ☐ **Adjust** the number of sessions or time spent on each module/activity based on the course/class schedule.
- ☐ **Compress or expand** activities; for shorter sessions, focus on core exercises, while for longer ones, incorporate in-depth discussions or case studies.
- ☐ **Offer** asynchronous options, such as pre-recorded lectures or additional reading, to remain flexible (for students and the course/class schedule).

Step 3: Customise Learning Activities

- ☐ **Modify or combine** exercises to accommodate different class formats (in-person, online, or hybrid) and session durations (e.g., 90-minute class, 1-day programme, etc.).
- ☐ **Integrate** active learning techniques, such as group discussions, peer reviews, or hands-on projects, as the core of problem-based activities.
- ☐ **Adjust** difficulty levels by simplifying tasks for introductory students or introducing complex problem-solving elements for advanced students.
- ☐ **Cross-reference** module/week topics and activities with existing course materials to create a seamless learning experience.
- ☐ **Always review and adapt the worksheets and slides before sharing them with students** to ensure they align with the revised structure and learning goals.

Step 4: Modify Assessment and Evaluation

- ☐ **Adapt** evaluation methods to fit your grading system and assessment strategy.
- ☐ **Use** formative assessments (e.g., quizzes, reflections) for ongoing learning feedback.
- ☐ **Provide** flexible evaluation formats, such as written reports, presentations, or digital submissions, to accommodate diverse learning styles and ensure DEI integration.

Step 5: Adjust Workload to Suit Students Needs

- ☐ **Break down** complex tasks into smaller, manageable steps for gradual learning and understanding.
- ☐ **Offer** optional or extra-credit assignments for students who wish to explore specific topics in depth.

By following these steps, you can **personalise** the modules to align with your **teaching approach** while maintaining their **core structure and effectiveness**. Adaptability is key to fostering an engaging and impactful learning experience for students.

INDIVIDUALISING MODULES

Examples of Adaptations

The EARTH OERs are designed for **flexibility**, and some teachers **have already applied** them in a variety of ways – from in-class workshops to full-semester classes. Here are some **implementation examples** that demonstrate how the materials can be adapted to various teaching formats, learning goals, and time frames.

Version 1: Interactive Workshop (90-120 minutes)

Focus: Applying the six-stage innovation process to a logistics sustainability challenge.

Session Structure:

- ☐ Begin with a **20-minute input** using condensed slides from Modules 1 & 2 (innovation basics, SDGs, and sustainability in logistics), along with a brief introduction to a **real-world case study** (e.g., from this Teacher's Guide or the EARTH Good Practice Compendium).
- ☐ Students are divided into **six groups**, each working on a **specific stage** of the innovation process for the real-world challenge presented.
- ☐ Each group receives:
 - A **worksheet** for their stage (from Module 3).
 - The **shared case study** + an **add-on brief** containing information from previous stages.
- ☐ **Digital templates** (e.g., Miro, Mural) are used to visually organise and structure ideas.
- ☐ Groups work in parallel for **60-70 minutes**, applying their **stage to the** case, with the support of the teacher(s) when necessary.
- ☐ Groups prepare and hold a **5-minute presentation** to share their results and experiences with their classmates.
- ☐ A short **class reflection** on the process and learnings follows the presentations.

Tips for this Format:

- ☐ Take time to **explain** the case study clearly and address any initial doubts.
- ☐ **Define** any unclear or ambiguous **terms** upfront to ensure clarity.
- ☐ Provide **clear, practical guidance** for each innovation stage – especially the later ones – so students can confidently begin mid-process without needing to develop earlier stages themselves.
- ☐ **Support students** as needed, especially with new methods and the use of digital tools.
- ☐ Be **flexible with timing** – some tasks may take longer than planned for some students, so include some buffer time when designing the workshop.

INDIVIDUALISING MODULES

Examples of Adaptations

The EARTH OERs are designed for **flexibility**, and some teachers **have already applied** them in a variety of ways – from in-class workshops to full-semester classes. Here are some **implementation examples** that demonstrate how the materials can be adapted to various teaching formats, learning goals, and time frames.

Version 2: Project-Based Seminar Format (Multi-Session)

Focus: Creative ideation, sustainability in logistics, and real-world inquiry.

Session Structure:

- ☐ Begin with the **EARTH Slides Deck and Starter Kit content** to introduce SDGs, sustainability challenges, and innovation concepts.
- ☐ Students select a **real-world case study** (e.g., from this Teacher's Guide or the EARTH Good Practice Compendium) and **explore** it in depth using structured worksheets and mind-mapping or brainstorming tools (e.g., MindMup, Miro).
- ☐ Include **questionnaires**, where students have the opportunity to conduct brief interviews with professionals using a guided template to gather outside perspectives.
- ☐ Use an **innovation challenge**: from ideation (100+ ideas) to clustering, prioritising, and concept refinement with selected tasks from the worksheets or other suggested methodologies (e.g., How-Now-Wow Matrix or other similar methodologies, like Six Thinking Hats for Stage 2).
- ☐ Implement **peer feedback** at key milestones to help evaluate and improve selected ideas.
- ☐ The final output can include a **team presentation** and a brief **written report reflecting** on the process, tools used, and idea development.

Tips for this Format:

- ☐ Help students select **meaningful case studies** and guide them in using mind-mapping or brainstorming tools to deepen their analysis.
- ☐ Provide **structured interview templates** to support student outreach and ensure focused, relevant insights from professionals.
- ☐ Use **creative ideation methods** like the How-Now-Wow Matrix or Six Thinking Hats to guide students from idea generation to refinement.
- ☐ Schedule **peer feedback checkpoints** to keep projects on track and encourage collaborative improvement before final presentations.

INDIVIDUALISING MODULES

Examples of Adaptations

The EARTH OERs are designed for **flexibility**, and some teachers **have already applied** them in a variety of ways – from in-class workshops to full-semester classes. Here are some **implementation examples** that demonstrate how the materials can be adapted to various teaching formats, learning goals, and time frames.

Version 3: Learning Unit – Part of Study Course (180 minutes)

Focus: Driving Innovation for Sustainable Logistics.

Session Structure:

Part 1 – Introduction (30 minutes):

- ☐ **Presentation** using **selected** slides from EARTH modules (1, 2, and 3):
 - Briefly explain the concept of the **SDGs** and how they **apply to logistics** (e.g., reducing CO₂ emissions = SDG 13: Climate Action).
 - Discuss the **role of innovation** in promoting sustainability and developing **sustainable logistics practices** (e.g., electric vehicles, AI route optimisation).
 - Present **real-life examples** of companies from the EARTH Good Practice Compendium or OERs' Slide Deck/Teacher's Guide showcasing **sustainable logistics practices**.

Part 2 – Group Work (70 minutes):

- ☐ Group division: Students are divided into **groups of 3 to 5**.
- ☐ Task focus: Each group **analyses sustainable solutions implemented in logistics** based on chosen companies (selected from EARTH Good Practice Compendium or OERs' Slide Deck/Teacher's Guide).
 - **Identify and analyse** the solutions applied to achieve **sustainable goals** (e.g., reverse logistics, zero-emission transport, digital parcel tracking, warehouse optimisation).
 - **Assign** 1 to 3 SDGs (e.g., SDG 9, SDG 12, SDG 13) that the **solution** supports.
 - **Determine** whether and which **innovation management** tools/methods were used to manage the implementation of the sustainable solutions.

Part 3 – Presentations and Reflection (80 minutes):

- ☐ Structuring the information: Groups prepare an **infographic or visual map** using a digital tool (e.g. Miro, Mural, MindMup, Canva).
- ☐ Short **group presentations** (3–5 minutes each): Each group shares their findings.
- ☐ Reflection: **Group reflection** guided by the following questions:
 - *Which SDGs are supported by logistics companies?*
 - *How do logistics companies contribute to the achievement of the SDGs?*
 - *Which solutions/types of solutions are most adopted and why?*
 - *Were appropriate innovation management tools/methods applied during the solutions' implementation?*

Tips for this Format:

- ☐ If suitable, this could be divided into **two 90-minute sections**, with the first focusing on the introduction and group work, and the second on presentations, reflection, and a deeper discussion.
- ☐ Clearly **explain the SDGs and provide concrete examples** of how they relate to logistics solutions (e.g., CO₂ emission reduction → SDG 13: Climate Action).
- ☐ **Define any unclear or ambiguous terms** upfront to ensure clarity.
- ☐ Provide students with **clear guidance on the analysis scope**, ensuring students focus on key sustainable solutions and their impact.
- ☐ Support students as needed when preparing an infographic/visual map on the **technical issues during creation**, and encourage creativity in the design.
- ☐ **Encourage students to think critically** when evaluating the extent to which a given solution contributes to sustainable development.


03

MODULE 2

INNOVATION MANAGEMENT

DIGITALISATION AND

SUSTAINABILITY



MODULE 2 OVERVIEW

About the module:

Students will explore the consortium's perspective on **innovation management digitalisation** and receive a curated **list of tools** designed to support the management of sustainable, innovative logistics practices. Guided by specific instructions, students will critically analyse these tools to understand their practical applications.

UNDERSTANDING THE RELATIONSHIP BETWEEN INNOVATION MANAGEMENT, DIGITALISATION AND SUSTAINABILITY IN LOGISTICS

Duration: 3 weeks – Minimum 3 sessions of 1,5 hours each, along with readings and task completion.

Learning Outcomes:

- ☐ Recognise digital tools for innovation management (Week 4).
- ☐ Understand the relationship between logistics and sustainability (Week 5).
- ☐ Analyse logistics activities addressing the SDGs (Week 5).
- ☐ Identify how digitalisation supports sustainable innovation in logistics (Week 6).
- ☐ Connect digital tools to the innovation management process for sustainable logistics (Week 6).

Evaluation: Student performance will be assessed through participation in module discussions and a short online questionnaire evaluating learning outcomes.

Regarding **timing**, be structured and allow students sufficient time to engage with activities and understand the concepts. For teaching this module in a 90-minute session, we recommend allocating approximately **45 minutes for input and discussion**, and **45 minutes for the worksheet activities**. Ensure that you adapt this to your students' needs and clearly communicate the allocated time for the activities.

WEEK 4: DIGITALISATION IN INNOVATION MANAGEMENT

Content

This week introduces students to the **role of digital tools in innovation management**. Start with an overview of the innovation management process and the **digital platforms that support each stage**. Use the Slide Deck to explain key concepts and demonstrate how different tools can facilitate various aspects of innovation, from ideation to implementation. Encourage students to think critically about how these tools impact efficiency, collaboration, and decision-making in logistics.

During the hands-on part of the session, students will explore some of the **digital tools** introduced in the lecture. Guide them in evaluating the **relevance** of these tools for different innovation management activities. In the problem-based activity, students will analyse innovation management digitalisation by **identifying potential challenges and opportunities** for any company. Encourage discussion on the advantages and limitations of various digital tools, considering factors such as usability, cost, and scalability. Ensure that students leave the session with a **deeper understanding** of how **digitalisation** supports innovation management and the **difference** between **digital solutions** in logistics (e.g., AI use in storage) and **digital tools** to support innovation management (e.g., Miro).

Activities

- ❑ Students should **examine the digitalisation of innovation management within a specific company** by identifying potential challenges and opportunities for innovation. They will **explore digital tools** that support the implementation of logistics solutions and assess their effectiveness within the innovation management process.
- ❑ In a **collaborative discussion**, they will evaluate the tools' relevance by weighing their advantages and limitations, considering how they facilitate different stages of innovation management.

MATERIALS

EARTH Starter Kit	pp. 23-29
Slide Deck: Innovation management stages linked to digital tools	Download PPT "EARTH – Slide Deck Module 2" pp. 13-19
Worksheet for students: how to identify a company's problems/innovations and how to identify relevant digital tools and evaluate their relevance	Download PPT "EARTH – Worksheets Module 2" pp. 2-4
External Sources on innovation management digitalisation and pedagogical methods	pp. 21-24



WEEK 4: DIGITALISATION IN INNOVATION MANAGEMENT

Digital Tools in Innovation Management

Digital tools play a crucial role in **modern innovation management** by streamlining processes, enhancing collaboration, and enabling data-driven decision-making. From ideation to implementation, various online platforms support different aspects of innovation, helping **companies stay competitive and efficient**. In this session, students will explore how digitalisation enhances innovation management by **analysing tools** that assist in data-driven insights, pipeline management, collaboration, and customer feedback integration.

By understanding these tools, students will be able to assess their impact on business efficiency, scalability, and decision-making. Encourage students to consider **how different tools cater to various stages of innovation management** and how companies can strategically integrate them to overcome logistical challenges. For an **overview of digital tools** that can be used at different stages of an innovation management process, refer to pages 23-29 in the [EARTH Starter Kit](#). Be sure to clarify the difference between a digital tool (used to support the innovation process) and a digital solution (used to solve a specific logistics problem) to avoid confusion among students.

Finding Possible Problems or Innovation Opportunities

To apply their knowledge, students will examine a real-world company of their choice to identify **innovation challenges and opportunities within its operations**. They should begin by researching how businesses currently manage innovation and what digital tools they employ, if any. It is essential to clarify that the **company and the specific challenge or opportunity** do not necessarily need to be related to logistics. The goal is to analyse **how digital tools support innovation in any context**, as the core principles remain applicable across industries. This flexibility allows students to engage with a **broad range** of companies and gain **diverse insights** into innovation management and digital practices.

Encourage students to ask:

- ❑ *What are the key pain points in the company's innovation management process?*
- ❑ *How do digital tools currently support or hinder*

the innovation management process?

- ❑ *What are the gaps in the innovation management pipeline that digitalisation could address?*
- ❑ *What opportunities exist for improving efficiency, sustainability, or customer experience?*

This problem-based approach will enable students to **critically evaluate the effectiveness of various tools**, considering factors such as usability, cost, and compatibility with existing systems. By the end of the analysis, students should be able to propose how specific digital tools can **enhance innovation management** within the chosen company.

How to Moderate the Discussion

Facilitating an engaging discussion is essential for helping students connect **theoretical concepts with practical applications**. Begin by summarising key digital tools and their role in innovation management. Encourage students to share their findings and engage in a **comparative discussion** of the advantages and limitations of different platforms.

Use the following **discussion prompts** to guide student participation:

- ❑ *Which digital tools are most commonly used in innovation management, and why?*
- ❑ *How do data-driven platforms (e.g., Tableau, Power BI, IBM Watson) support decision-making?*
- ❑ *Which tools are best suited for managing innovation pipelines (e.g., Planview Spigit, Planbox, ClickUp)?*
- ❑ *What are the strengths and weaknesses of collaboration tools (e.g., Confluence, Coda, Notion) in innovation management?*
- ❑ *How do customer feedback tools (e.g., Canny, Productboard, Braineet) contribute to more effective innovation?*
- ❑ *Should companies use an all-in-one solution (like Brightidea), or is a combination of specialised tools better?*

Encourage students to support their opinions with **examples from their research**. Introduce counterarguments, when applicable, to **challenge assumptions and encourage critical thinking**. The goal of the discussion is to ensure that students leave with a deeper understanding of **how digital tools support innovation management** and the **distinction between digital solutions** in logistics and these **digital tools**.

WEEK 5: SUSTAINABILITY IN DIGITAL INNOVATION MANAGEMENT

Content

This week focuses on **sustainability and its relationship with logistics**. Begin with a lecture on the SDGs and how innovation management can help companies implement sustainable practices. Use the Slide Deck to highlight key sustainability challenges in **logistics and their connection to the SDGs**. Emphasise the importance of aligning business **innovation** with broader **sustainability** goals.

Before class, students should engage with the assigned materials on the SDGs and sustainable logistics.

Use this as a foundation for a **discussion on real-world sustainability issues in logistics**, encouraging students to share their insights and perspectives. In the **problem-based activity**, student groups will analyse **logistics sustainability challenges** and identify ways to manage potential solutions within the innovation management process.

Activities

- Before class, students will **engage with assigned readings**, including literature and multimedia resources, to deepen their understanding of the SDGs and their connection to logistics.
- Using insights from the EARTH Good Practice Compendium, in class, they **will analyse real-world logistics sustainability challenges** and **evaluate how these challenges can be addressed** within the framework of the innovation management process, linking sustainability and innovation through problem-solving.

MATERIALS

EARTH Starter Kit	pp. 7-16
EARTH Good Practice Compendium	pp. 12-14; 37-48
Slide Deck: SDGs Overview and how innovation management supports their implementation	Download PPT "EARTH – Slide Deck Module 2" pp. 20-26
Worksheet on instructions for the before-class activity and guidance for the problem-based activity with an example	Download PPT "EARTH – Worksheets Module 2" pp. 5-8
External Sources on SDGs, sustainable logistics and innovation management and pedagogical methods	pp. 21-24



WEEK 5: SUSTAINABILITY IN DIGITAL INNOVATION MANAGEMENT

Exemplary Case Study for the Problem-Based Activity

In this session, students will **apply the innovation management process** to a real-world **logistics sustainability challenge** related to the **SDGs**. Instead of analysing a fully detailed case study, students will **imagine and reconstruct** how a company developed (or might have) its sustainability solutions through the innovation management process. They should outline possible steps the company took – from identifying the problem to testing and implementing a solution – based on what is known from the case summary and any visible outcomes. To fill in the gaps, learners should apply **logical reasoning** and reflect on how various perspectives and constraints could have influenced each stage of the process. Students should be encouraged to consider a **wide range of perspectives** and stakeholder needs in their solutions, ensuring the approach is both socially responsible and broadly applicable.

Discussing the Results

This discussion should take place **after students have completed the worksheet activities**, where they identified a sustainability challenge and applied the **stages of innovation management** to a company. The teacher should help students **reflect on their findings** and discuss how digital tools and sustainable logistics solutions align with business strategy. To foster an **inclusive discussion**, the teacher should encourage contributions from all students and prompt reflection on how diverse stakeholder needs and experiences can shape innovation outcomes.

How to Moderate the Discussion

To facilitate a meaningful discussion, encourage students to think critically about how companies structure their **sustainability efforts within logistics operations**. The following approach will help guide the conversation, using an example from the [EARTH Good Practice Compendium](#) (pp. 12-14): GLS Italia Spa – Driving Sustainability through Digital Innovation.

- 1. Identifying Sustainability Challenges:**
Ask students to summarise the logistics-related

sustainability challenge they explored.

- ❑ *Example (GLS Italia Spa): Reducing carbon emissions while maintaining high delivery performance.*

- 2. Applying the Innovation Management Process:**
Guide students in discussing how the company (could) have structured its innovation process.

- ❑ *Example: GLS identified emissions from its fleet and facility energy use, invested in electric vehicles and photovoltaic systems, partnered with Volvo for new technologies, and scaled up through 580 charging stations and carbon offset programmes.*

- 3. Evaluating Digital Tools & Solutions:**
Encourage students to assess the role of digital tools in supporting innovation.

- ❑ *Example: The “ServiceNow” platform improved cross-department process efficiency and enabled structured implementation of sustainability initiatives.*

- 4. Exploring Alternative Innovation:**
Ask students what **other sustainable innovations** the company could implement.

- ❑ *Example: AI-based dynamic routing to optimise delivery paths and reduce idle time and emissions.*

This discussion should be concise, focusing on **key takeaways** rather than detailed documentation, as students already have tables in the worksheet to complete their case study. The goal is to ensure they critically engage with the innovation process and understand how companies **balance sustainability, digitalisation, and logistics operations**.

WEEK 6: DIGITAL TOOLS FOR INNOVATION MANAGEMENT

Content

This session builds on previous discussions by **linking digital tools to sustainable logistics innovation**. Start with a recap of the main insights from Weeks 4 and 5 (if applicable), helping students **consolidate their understanding** of innovation management digitalisation and sustainability. Then, introduce the hands-on activity where students will **compare digital tools** by selecting the most relevant ones for addressing sustainability challenges in logistics.

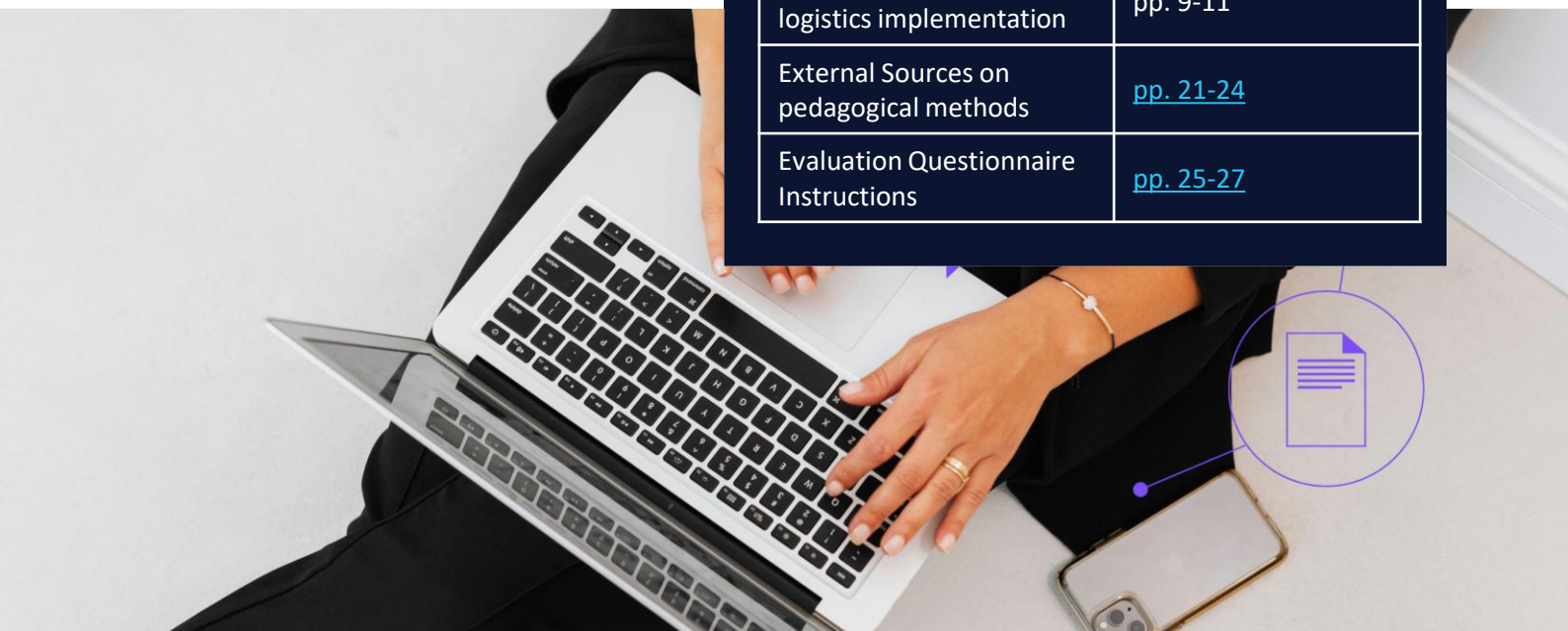
During the problem-based activity, students will **create infographics** that illustrate how selected digital tools support the innovation management process. Encourage them to critically evaluate the **strengths and weaknesses** of different tools, considering factors such as functionality, cost, and ease of use. In the **discussion** part, each group will present their infographics, highlighting how digital tools contribute to the management of innovative, sustainable logistics solutions. Guide the discussion to ensure students grasp the **practical applications** of these tools and their **impact on the innovation management process**. Ensure **all students** have the opportunity to contribute and that **diverse user needs** are considered when evaluating each tool.

Activities

- Student groups will explore digital tools, focusing on **one innovation management stage** and create **infographics** with screenshots to illustrate functionalities. They should **compare** their impact on innovation and evaluate their role in sustainable logistics, presenting their insights in class. The format can be adapted (e.g. video, report, infographic, presentation) to suit students' needs, abilities, and available resources.
- Through an **online questionnaire**, students will evaluate the achievement of the module's learning outcomes. Create this questionnaire according to the guidelines in Section 04.

MATERIALS

EARTH Starter Kit	pp. 23-29
Slide Deck: Recap on Week 4 and Week 5 concepts and focus on students' results on problem-based activities	Download PPT "EARTH – Slide Deck Module 2" pp. 27-32
Worksheet for students: how to create infographics to compare the tools and to reflect on sustainable logistics implementation	Download PPT "EARTH – Worksheets Module 2" pp. 9-11
External Sources on pedagogical methods	pp. 21-24
Evaluation Questionnaire Instructions	pp. 25-27



WEEK 6: DIGITAL TOOLS FOR INNOVATION MANAGEMENT

Tool for Each Innovation Management Stage

Digital tools are essential in supporting each stage of innovation management. A selection of exemplary digital tools can be found in the [EARTH Starter Kit](#) (pp. 21-25), which also includes a more detailed overview of which tools are useful at **each stage of the innovation management process** (pp. 26-29).

Below is an overview of how digital tools can help companies tackle **sustainable logistics challenges** at various stages of the **innovation management process**:

1. Innovation Opportunity Identification

- ❑ **Statista, Crunchbase** – Market and trend analysis tools to identify sustainability-driven opportunities.
- ❑ **Power BI, Tableau** – Data analytics platforms to assess logistics sustainability trends.
- ❑ **IBM Watson** – An AI-driven tool for predictive analysis of innovation opportunities.

2. Ideation and Idea Management

- ❑ **Brightidea, Braineet, Ideawake, Ideanote, Qmarkets** – Platforms for collecting, evaluating, and managing sustainable innovation ideas.
- ❑ **Lucidspark, MindMeister, Bluescape** – Visual brainstorming tools for mapping out sustainable logistics ideas.

3. Concept Development

- ❑ **MarvelApp, Figma, Adobe XD, Sketch** – Tools for developing low-fidelity prototypes of logistics solutions.
- ❑ **ClickUp, Monday.com, Asana** – Project management tools for structuring concept validation.
- ❑ **InnovationCloud, Brightidea** – Platforms for concept tracking and refinement.

4. Product/Service/Process Development

- ❑ **Coda, Confluence, Notion** – Documentation and collaboration platforms for sustainable project execution.
- ❑ **Planbox, Planview Spigit** – Innovation lifecycle management tools to develop and implement sustainability-focused solutions.

5. Testing and Validation

- ❑ **Productboard, Braineet, Canny** – Customer feedback tools for validating sustainable logistics solutions.

- ❑ **Power BI, Tableau** – Data visualisation platforms to analyse testing outcomes.

- ❑ **Planbox, Brightidea** – Innovation testing management tools.

6. Launch

- ❑ **edison365, Planbox, ClickUp, Monday.com** – Platforms for scaling sustainable innovations.
- ❑ **Planview Spigit, InnovationCloud** – Tools for tracking long-term impact and sustainability integration.
- ❑ **Coda, Confluence, Notion** – Knowledge management tools to document sustainability initiatives.

How to Moderate the Discussion

After students present their **infographics**, facilitate a **discussion** to help them evaluate their chosen digital tools and their role in **sustainable logistics innovation**. Encourage each group to explain how their tool supports a specific **innovation management stage** and contributes to **sustainable logistics implementation**, whether by improving efficiency, reducing emissions, or enhancing collaboration.

Guide a comparative analysis by prompting students to consider **functionality, usability, scalability, and cost**. Ask which features make the tool effective, how easily it integrates with existing systems, and whether its cost justifies the benefits. Encourage discussion on whether a **combination of tools** better supports innovation management than relying on a single solution.

Wrap up the discussion by reflecting on the broader impact of sustainable solutions in logistics. Ask students to consider **both the benefits and limitations** of the tools discussed. Conclude by emphasising the importance of **integrating digital tools into innovation management strategies** to effectively address logistics challenges.

Finally, remind students to complete an **online evaluation questionnaire** to assess the module, allowing them to reflect on their learning experience. Teachers can create this form according to the guidelines on [pages 25-27](#) and then distribute the link to the students. To ensure **timely feedback** and maintain relevance, set a submission deadline for the reflection, such as within one week of completing the activities for week 6.

04

ADDITIONAL

RESOURCES



EXTERNAL SOURCES

To provide a comprehensive overview, the following pages offer additional information on specific topics relevant to each week's content as well as general pedagogical resources. Teachers may use this material to supplement their lessons as needed.



EXTERNAL RESOURCES

To support learning and spark deeper reflection, students (and teachers) are encouraged to check out the following **external resources**:

Week 4: Digitalisation in Innovation Management

Innovation Management Digitalisation

- ❑ [Digital Transformation in 5 Minutes](#)

Week 5: Sustainability in Digital Innovation Management

SDGs, their importance, and connection to logistics and innovation management

- ❑ [Extending the Sustainable Development Goals to 2050 - a road map](#)
- ❑ [Roles of innovation in achieving the Sustainable Development Goals: A bibliometric analysis](#)
- ❑ [Do you know all 17 SDGs?](#)

Examples of sustainability problems in logistics related to the SDGs

- ❑ [Top challenges of sustainable logistics and how to overcome them](#)
- ❑ [Sustainable logistics for a world in motion](#)

EXTERNAL RESOURCES

For **teachers**: The following provides general external resources to support **pedagogical aspects** of the course, including **leading feedback sessions and facilitating discussions**. These materials are relevant throughout the module and can enhance teaching effectiveness.

1. Guidelines to Moderate Discussion (Flow & Reflection)

- ❑ [Classroom Discussions: Strategies & More](#)
- ❑ [Moderate A Panel Discussion](#)
- ❑ [Behind The Capsule - How to be a good moderator for a panel - useful tips](#)
- ❑ ["Facilitating Effective Discussions"](#) by University of Waterloo Centre for Teaching Excellence
- ❑ ["Leading Discussions"](#) by Harvard University

2. Guiding Students Through Research (Interview & Desk Research)

- ❑ [How to do a research interview](#)
- ❑ [UX Research - Get Started With Qualitative User Research](#)
- ❑ [Semi-structured interviews guidance for novice researchers](#)
- ❑ ["Pedagogic Approaches to Developing Students as Researchers"](#) – Advance HE
- ❑ ["Introduction to Research Methods"](#) – University of London via Coursera

3. Guidelines on Reflection Summary

- ❑ [How To Write a First Class Reflective Essay in 5 Simple Steps](#)
- ❑ [Steps to Write a Reflective Essay with Examples](#)
- ❑ ["Structure of Academic Reflections"](#) – Reflection Toolkit, University of Edinburgh
- ❑ ["Introducing Reflection as an Assignment"](#) – Reflection Toolkit, University of Edinburgh
- ❑ ["Learning to Teach: Becoming a Reflective Practitioner"](#) – OpenLearn by The Open University

4. Guidelines on Peer Reviews

- ❑ [How to Peer-Review Like a Pro](#)
- ❑ [No One Writes Alone: Peer Review in the Classroom - A Guide For Students](#)
- ❑ ["A Guidebook for Peer Evaluation"](#) – Valdosta State University
- ❑ ["Peer Review in Assessment and Improvement: An Overview of Five Principles to Promote Effective Practice"](#) – Loyola University Chicago
- ❑ ["Accreditation Peer Review Handbook"](#) – NAEYC
- ❑ ["Policies for Evaluating Faculty: Recommendations for Incorporating Peer Review"](#) – University of Texas System

EXTERNAL RESOURCES

5. Guidelines on Hold/Moderate Presentations/Showcasing

- ☐ [HOW TO START A PITCH OR PRESENTATION](#)
- ☐ [Become A Better Workshop FACILITATOR In 8 Minutes \(Facilitation Technique\)](#)
- ☐ [Fear of Presenting? How to Give a Great Presentation at Work](#)
- ☐ [Good Presentation VS Bad Presentation](#)
- ☐ ["Public Speaking: How to Moderate and Present"](#) – Coursera, University of Washington

7. Guidelines on How to Provide Constructive Feedback

- ☐ [How to Give & Get Constructive Feedback](#)
- ☐ [Giving Constructive Feedback in the Workplace](#)
- ☐ [8 EASY Tips on How to Give Constructive Feedback](#)
- ☐ [The 10 Guidelines for Great Constructive Feedback](#)
- ☐ [Guidelines to students on providing constructive feedback](#)

8. Guidelines on Complete Online Final Feedback

- ☐ [How to Get Customer Feedback Online \(6 Best Ways\)](#)
- ☐ [Online Pedagogy: How & Why to Give Feedback](#)
- ☐ [3 necessary elements to providing effective feedback](#)
- ☐ [The Effectiveness of Emotional Motivational Feedback Messages](#)

EVALUATION GUIDELINES

The following contains a guideline for designing the feedback form in Week 6. Questions can be adapted to serve individual teaching styles. After creating the questionnaire on a preferred platform, the teacher can distribute the link to students.



WEEK 6: EVALUATION QUESTIONNAIRE

The following reflection questionnaire is designed for **Module 2**, Week 6. It provides a flexible framework to assess student learning, participation, and engagement throughout the module.

Teachers can **use or adapt these questions** to suit their own teaching style and student needs, and implement them in survey tools such as [Google Forms](#), [Qualtrics](#), [Microsoft Forms](#), or any other preferred platform.

The responses will offer valuable **insights into students' understanding** of innovation management, the role of digital tools, and the connection between sustainability and logistics. Additionally, the questionnaire encourages critical reflection on how innovation management digitalisation supports sustainability in real-world applications.

Using the Questionnaire:

- ☐ Teachers may **distribute** this questionnaire digitally or, alternatively, in print.
- ☐ The responses will help **evaluate** students' understanding of digital tools for innovation management, the importance of sustainability and the SDGs in logistics, and how digital tools support the implementation of sustainable solutions in logistics.
- ☐ The questions that follow are **suggestions**. Teachers may select those who apply better to the activities performed throughout the module and add questions for any aspect that may be missing.

Evaluation Questionnaire

Section 1: General Information (optional)

1. Student Name:

[Open text field]

2. Group Number (if applicable):

[Open text field]

Section 2: Digital Tools for Innovation Management

3. How confident do you feel in identifying and using digital tools for innovation management?

[Scale: 1 (Not confident) – 5 (Very confident)]

4. To what extent did the module help you understand how digital tools can be applied in managing innovation in logistics?

[Scale: 1 (Not at all) – 5 (To a great extent)]

5. How effectively did you apply digital tools in your project work?

[Scale: 1 (Not effectively) – 5 (Very effectively)]

Section 3: Logistics and Sustainability

6. How well do you understand the relationship between logistics and sustainability after this module?

[Scale: 1 (No understanding) – 5 (Strong understanding)]

7. How clearly can you identify key sustainability challenges in logistics?

[Scale: 1 (Not clearly) – 5 (Very clearly)]

8. How effectively did your project work help you explore solutions for sustainability challenges in logistics?

[Scale: 1 (Not effectively) – 5 (Very effectively)]

Section 4: SDGs and Sustainable Logistics Activities

9. How well do you understand the SDGs most relevant to logistics?

[Scale: 1 (Not well) – 5 (Very well)]

10. How effectively did this module help you understand how companies implement logistics activities to support SDGs?

[Scale: 1 (Not effectively) – 5 (Very effectively)]

WEEK 6: EVALUATION QUESTIONNAIRE

Section 5: Learning Experience

11. Did case studies represent diverse perspectives fairly?

[Scale: 1 (Strongly Disagree) – 5 (Strongly Agree)]

12. What barriers did you face in participating fully?

[Open text field]

Section 6: Module Feedback

13. What would you have liked to see in this module?

[Open text field]

Interpreting the Results:

- ☐ **Understanding & Application:** Assess whether students grasped the innovation process and effectively applied it in their projects.
- ☐ **Digital Tools & Confidence:** Assess how well students could use digital tools for innovation management and decision-making.
- ☐ **Sustainability Integration:** Evaluate if students connected sustainability with logistics innovation and applied it in their solutions.
- ☐ **Module Improvements:** Identify common suggestions for content, teaching methods, or additional resources to enhance learning outcomes.

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