

How to put SDGs into practice in the classroom through digital tools



Co-funded by the European Union

#StairwaytoSDG

How to put SDGs into practice in the classroom through digital tools

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sustainabilitymakers.eu

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The "SusTAINability makeRs, the WAY
to Sustainable Development Goals - 3.0"

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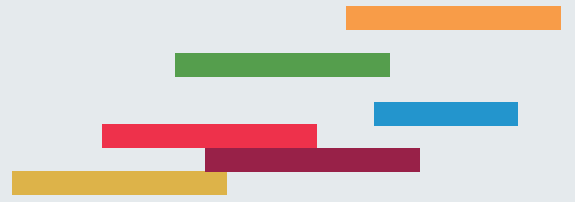
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1. INTRODUCTION

Who is this for?

If you are a VET teacher and eager to engage your students in a sustainable approach to their current or future jobs, "**Stairway to SDG**" can assist you in integrating one or more Sustainable Development Goals (SDGs) into your students' learning process. This step-by-step handbook will guide you in utilizing the digital tools developed by the project.

What is the purpose?

This handbook's purpose is to provide high-quality digital tools, and guidelines for a flexible educational path. Based on blended learning, it aims to improve the digital competencies for all the actors of the educational community and to increase their awareness about the SDGs.

Which tools are described in this handbook?

- The **e-learning platform** called **sustainabilitymakers.eu** designed to provide an online educational experience through specific e-modules for each SDG and,
- The **2D game** called **Sustainability Challenge** designed to engage the students to explore sustainability through 6 different challenges.

Why are the platform and the game important?

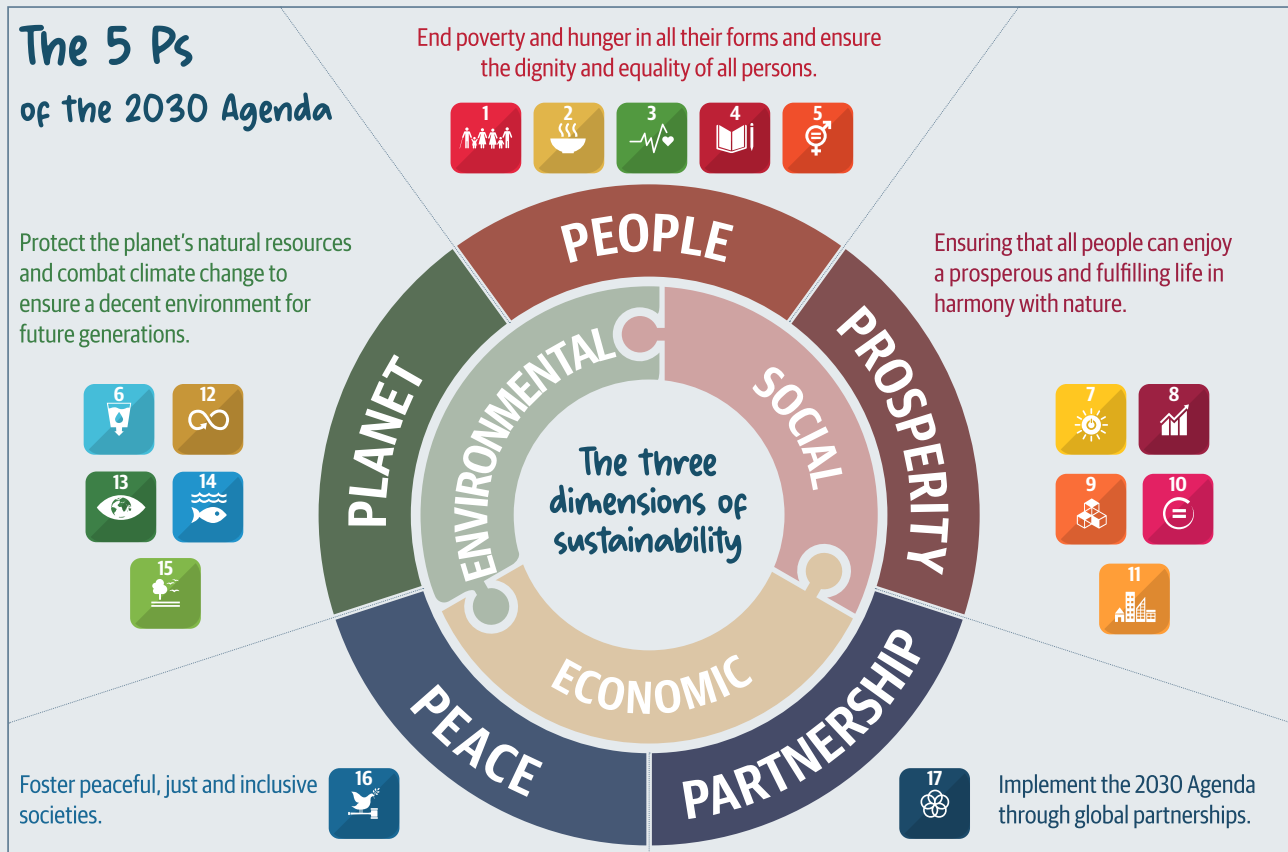
The Stairway to SDG approach is based on transformative education that focuses on behavioral change through reflection and action. To ensure an effective behavioral change, it is necessary to plan the learning process of the students in the medium-long term by integrating the activities and the indicators proposed by the project into the lesson plans of different training courses. By spreading the content over different courses within their field of study, students learn to see that sustainability plays a role in every aspect of life.

What is my role in this?

As VET sectors, curriculums, and national contexts are very wide and diverse it is not possible to create one plan that fits all. In the following pages, we propose a step-by-step path that you have to adapt to your context and students, with the idea that if we teach students to be responsible people, we can transform our society into a sustainable community.

2. CONCEPTS FRAMEWORK

This methodological approach is based on a set of assumptions related to Experiential Learning (Beard & Wilson, 2002), Sustainability Competencies based on Wiek (2011), Learning Objectives based on UNESCO (2017) and Understanding the role of digital technologies in education (A. Haleem, M. Javaid, M.A. Qadri, R. Suman).



2.1. The 5Ps of the 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared action plan for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth - all while tackling climate change and working to preserve our oceans and forests. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.

- **People** We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment.
- **Planet** We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.
- **Prosperity** We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.

- **Peace** We are determined to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.
- **Partnership** We are determined to mobilize the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.

The interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realized. If we realize our ambitions across the full extent of the Agenda, the lives of all will be profoundly improved and our world will be transformed for the better.

2.2. Experiential learning based on action areas to change behavior

Experiential Learning can be defined as a *“person-focused, supported approach to individual, group, or organizational development, which engages the young or adult learner, using the elements of action, reflection, and transfer”* (Beard & Wilson, 2002). Building on learner’s former experiences, everyone within the group should be guided by the facilitators to engage in effective learning exercises following a four-step cycle called the Experiential Learning Cycle (Kolb,1984):

- 1) Concrete Experience;
- 2) Observation and reflection;
- 3) Forming Abstract Concepts;
- 4) Testing in new situations.

According to this approach, the **first step** should allow learners to experience a new situation or to reinterpret an existing experience. The **second step** should guide learners to remember, describe and understand that experience. In **step three** learners are invited to reflect on their own experience looking for patterns and overall conclusions and its links to the “real world”. Finally, in **step four** learners have the chance to find ways to apply conclusions to the world around them and their personal lives (Kolb, 1984). This step has crucial relevance to learning consolidations and can trigger new learning cycles and change behaviors.

Our proposal includes **three action areas for each SDG**. The action areas were created based on a participative approach that includes a reflection from teachers and sustainability experts. This approach recognizes the relevance of working on the SDGs starting from the concrete experience and daily life of the learners (step 1), creating the opportunity to reflect and conceptualize (step 2 and 3) and putting sustainable solutions into practice (step 4).

Action areas are used because there is a need to “translate” the SDGs from several thematic fields, many of them associated with macro policy-making levels, to an individual level to promote personal responsibility and commitment. Actions are concrete and measurable, and are directly connected to people’s behavior and not only with their ideas, thoughts or opinions. Our Action Areas have aspects in common with driving forces for sustainable daily life actions¹ and, if we want to promote sustainability, we have to reinforce individual responsibility and active participation.

2.3. Sustainability competencies and Learning Objectives

“We are in the early stages of a fundamental and globally pervasive transformation in the interactions of humans, their institutions, the technologies they have created, and the environment that provides both the home and the resources that make it all possible.” (Wiek et al., 2011).

¹ (Smith-Sebasto & D’Acosta, 1995; Monroe, 2003): a. Civic action (e.g., voting, petition signing) b. Educational action (e.g., looking up information, reading) c. Financial action (e.g., donating money, boycotting a company or product) d. Legal action (e.g., using the legal system to force compliance with environmental law) e. Persuasive action (e.g., advocacy, letter writing) f. Direct behavior i. Making a one-time purchase (e.g., buying an Energy Star appliance or insulating a home) ii. Making a frequent purchase (e.g., consistently buying locally produced goods) iii. Curtailing or ending a certain type of behavior (e.g., driving less) iv. Substituting a new for an old behavior (e.g., biking instead of driving) v. Making a behavior more efficient (e.g., carpooling instead of driving alone).

There is a general consensus that sustainability is related to **key competencies** that allow citizens to engage constructively and responsibly in today's world. Key competencies are necessary for all learners of all ages worldwide (developed at different age-appropriate levels). They can be understood as transversal, multifunctional and context-independent.

In the case of this project, we use a validated set of sustainability competences: Systems thinking competence; Anticipatory competence; Normative competence; Strategic management and action competence; Interpersonal competence; Embracing diversity and Interdisciplinary competence.

In this approach, we consider UNESCO learning objectives defined by SDG that include cognitive, socio-emotional and behavioral domains. The cognitive domain is related to knowledge and thinking skills. The socio-emotional domain is related to social and self-reflection skills, values, attitudes and motivations. The behavioral domain describes concrete action competencies.

2.4. The role of digital technologies in education

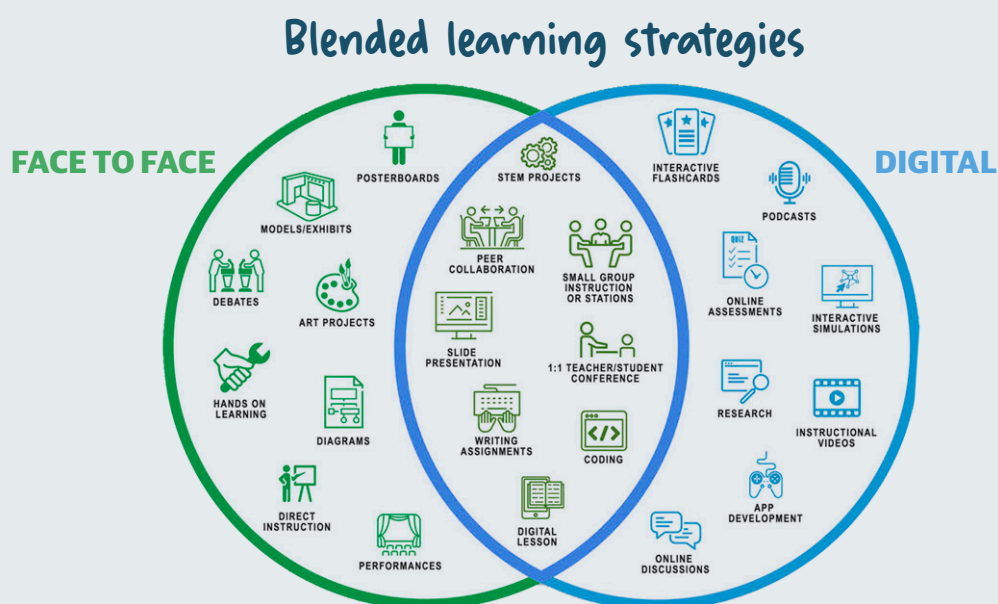
In today's society, digital tools and gamification have become increasingly prevalent in various aspects of our lives, including education. These technologies offer unique opportunities for enhancing the learning experience and engaging students in a way that traditional teaching methods often struggle to achieve. The value of digital tools and gamification lies in their ability to promote active learning, increase student motivation, and provide personalized and adaptive learning experiences.

Active learning is an essential aspect of the education process. It involves engaging students in activities that require them to think critically, problem-solve, and apply knowledge to real-world situations. Digital tools and gamification provide educators with a wide range of interactive resources that can promote active learning in the classroom.

For example, our e-learning platform and 2D game offer students the opportunity to explore information, complete quizzes and exercises, and collaborate with their peers. These tools encourage students to actively engage with the content and take ownership of their learning. The use of digital tools also allows for personalized learning experiences, as students can progress at their own pace and receive immediate feedback on their performance. Furthermore, gamification has gained popularity in recent years as a method of engaging students and fostering motivation.

The use and implementation of technological tools converge day to day towards an education mediated by information technologies and communication (ICT).

The educational methodologies usually used require a high degree of innovation in order to implement improvements in educational originality and not replace them completely and thus generate an environment of innovation within the academic context (Hamari, Koivisto, & Sarsa, 2014). Definitely, the technological advances related to the learning process give rise to the calls "digital challenges" (Roosta, Taghiyareh, & Mosharraf, 2016), where our project inserts to improve the digital competencies of our Sustainability Makers.



3. PRACTICAL GUIDE FOR TEACHERS

In the following pages we set out a step-by-step path based on your needs, curriculum and subjects to plan activities with your class. Here we outline four options for the education activities as a basis for your planning.

3.1. Three Stages

We propose a flexible process based on three stages to be developed directly with the students:

- ▶ **Initial assessment** - to check the behaviors of the students as a pre-test. This can be done with other tools but the app that we developed in the previous project www.stairwaytosdg.eu can be a useful and practical way to do it. It's important to use this as a self-assessment for the student and to collect more information to prepare for the next stage.
- ▶ **Learning process** - this is the heart of the project and in our digital tools. We have developed a set of educational activities with different options, as you can read below. For this, you have to be aware of the context (the students, curriculum, etc.), and the time available to do work on this content. Optionally, you can select certain SDGs or specific activities you want to work on;
- ▶ **Final assessment** - to check the behavioral change that occurs in the student's life during the learning process. This isn't a summative evaluation method but a way of making students aware of their evolution during the learning process. In a formal educational context, you can evaluate this through a paper, a test, etc. but we provide the app as a we formative evaluation tool.

Evidently, before starting to use these digital tools in the classroom, the teachers and trainers need to do a short assessment and plan the activities with the students taking into consideration the time, the curriculum, the target group, local context and any specific needs related to these or other aspects.

In order to facilitate the learning process and the initial and final self-assessment, we included a plug-in to connect with the app of the previous project in the new e-learning platform sustainabilitymakers.eu, avoiding double registration and increasing the effectiveness, quality, and sustainability of our digital tools.

1 - Initial Assessment	2 - Learning Process	3 - Final Assessment
App	Introduction e-module + 17 SDG-specific e-modules + Evaluation e-module + 2D game	App
E-Learning Platform: sustainabilitymakers.eu		

3.2. Learning Pathway and Educational Activities

All the activities and tools on the e-learning platform can be used separately, but to have a stronger impact we recommend following one of three paths: simple, intermediate, and expert.

First of all, take into consideration the time available and the desired learning pathway and choose your option. Don't be afraid about the number of sessions, and don't forget that this is an e-learning platform: you can ask your students to carry out some parts of the session at home. We calculated 50 minutes for each session but the time to carry out the activities is an estimation, there are different variables that can change it. Also, as a teacher, you can decide to speed up or reduce the time necessary for your students. Our perspective is based on blended learning: a combination of face-to-face and online classes designed mainly for a target group from 16 to 25 years old. Take this into consideration when you are planning your lessons and check our tips in order to adapt the activities to your context.

Learning Pathway			
	A / Simple	B / Intermediate	C / Expert
Nº of SDGs on going	1	2 or more	1 for each P ²
Nº of sessions provided	7 - 10	11 - 17	+ 20
Timeframe	3 to 5 months	5 to 10 months	10 months

Also, these tools can increase their effectiveness if they are used by more teachers in your study program. Clearly it needs coordination among the teachers in order to avoid overlapping.

In this way you are working on "intermediate" or "Expert" pathways and probably you can reduce the time dedicated in your own class, planning and sharing with more teachers the use of the e-learning platform.

Why not do it by involving your center? Now this is an amazing innovation!!

² The 17 SDGs are grouped into 5 subgroups / themes: People, Planet, Prosperity, Peace, Partnerships.

3.3. Educational Activities

Educational Activities			
	A / Simple	B / Intermediate	C / Expert
Presentation and registering	1	1	1
Introductory e-module	1	1	1
Specific SDG e-module	4 - 7 + Call to Action	8 - 14 + Call to Action	20 + Call to Action
Evaluation e-module	1	1	1
2D Game	3	3	3
Timeframe	3 to 5 months	5 to 10 months	10 months

- **Presentation and registering.** The first step will be to register yourself in the e-learning platform defining your role as "Trainer". Once inside the platform you have the opportunity to create your profile, check the contents and the tips for you in each section of the different modules. Understand the platform, the contents and plan the proposal for your students!!
- **Introductory e-module.** We have prepared a specific module to introduce the concepts and importance of the SDGs in less than 1 hour. In general, the activity pretends to create a common understanding about the Agenda 2030 in order to give you a standard base to work successively in your specific topics. The debriefing with your student will be the key!!
- **Specific sessions.** You know the SDG that you want to work on and you have to plan several sessions to create a "snowball" process of increasing complexity. The first thing is to do an initial assessment³ with your trainee and you can use our APP. After, you have to follow the indications of each e-module, defining which session you want to work in class and which one leaves autonomy to the trainee. Each e-module is passing for three steps:

 - **Know:** introduces the topics related to the SDG and has the objective of providing deeper insight and knowledge to learners.
 - **Explore:** is focused on the Action Areas related to the SDG. It includes three different activities and the aim is to connect theory to real life problems.
 - **Act:** contains a *Call to Action*⁴ propose encouraging learners to develop some concrete actions to face the challenges that have been explored in the previous sections. Moreover, the platform enables users to share the outcomes of the call to action with other learners. To complete the different parts of the e-module takes you several weeks and sessions but it's necessary to give the time to the learners to assimilate the information, organize themselves and transform his behaviors. Don't forget to measure these changes using our APP again!!
- **Evaluation e-module.** As in all the learning process the evaluation is an important part and, in this session, you are going to discover if you and your learners are Sustainability makers, refreshing your understanding of what it entails. This module also delves into the competencies that empower you to become it in your professional and personal life. The activity should be based on a final robust debriefing to achieve and consolidate learning!!

► **2D Game "Sustainability Challenge"**. The game's aim is to explore some important action areas of the SDGs related to concrete actions and practices through which the players can reflect on their daily behaviour. It offers a different way of teaching through and can be adapted to different learning styles. You can use this tool like a jolly. Depending on your context and the profile of the learners you can use it to reinforce some specific topics connected with your curriculum or why not like a deeper introduction or evaluation of the platform!!

4. HOW TO PUT IT INTO PRACTICE?

If you want to implement this process with your students it's important to plan and adapt it to your own context. To do so you need to do the following analysis:

- **1st**. Define priorities and subjects (one or more SDGs) that are relevant to your VET sector, local community context and learner's personal life;
- **2nd**. Integrate the SDGs into the curriculum because it will have a deeper impact, facilitate the learning process and it will be a win-win situation for the students' results at the end of the year.
- **3rd**. Identify alliances in your educational community (trainers, directors, families, etc.) in order to involve more people in this process.

For that you can use the following table:

Agenda selection		How to integrate SDGs into our course?		
SDG	Action Area	Subject	Curriculum	Notes



After that it is time to plan, based on the analysis, and make some decisions:

- How long do you want to do this process? Based on this you can select the option A, B, C or design your own learning path?
- What SDGs and action areas do you want to work with?
- How many sessions do you want to do in class and how many sessions you consider that the learner can do at home individually?
- How do you want to manage the call to action?
- In which way do you want to use the 2D game?
- Who will be responsible for the sessions?
- How can you give visibility to this work in your center?

Finally, you need to schedule it and implement it and for that you can use the following table:

3 You can use the APP to measure the behavior related to just one SDG or more depending on your Learning Pathway.

4 Most of the call to action consists of a parallel action out of the class and/or school, (volunteering activity, an activist demonstration, a vegetable garden, a market in the school, etc.). For each SDG we propose one call to action that is interchangeable at the discretion of the trainer.

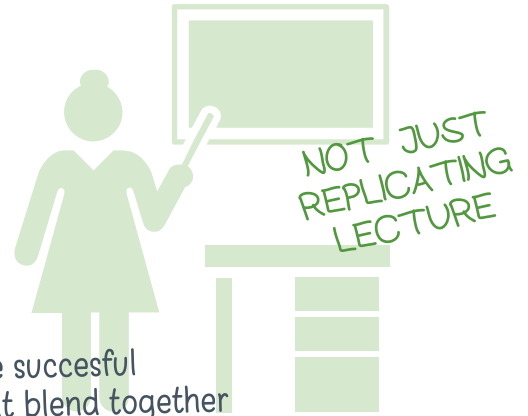
CENTRE / SCHOOL	SDGs SELECTED	  Co-funded by the European Union									
COURSE	Nº OF SESSIONS										
CLASS	YEAR										

Activities	What			Who	Where	When													
	SDGs	Action Areas	Subjects			Trainer / Learner	Place	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
Presentation and registering																			
Introductory e-module																			
Specific SDG e-module (Know)																			
Specific SDG e-module (Explore)																			
Specific SDG e-module (Act)																			
Evaluation e-module																			
2D Game																			

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some tips about BLENDED LEARNING



the modern teacher needs to be successful in connecting the bricks and clicks that blend together the **online** and the **face to face** classroom

ENGAGE WITH STUDENTS

Participate in polls, quizzes, games and interactive elements. Don't send your classroom all over the Internet.



CREATE 2-WAY COMMUNICATIONS

Establish **habits of feedback, discussion, and conversation** about learning between students and teachers



USE VIDEOS

Make personal videos to teach!!
Students respond when these videos have their teacher's voice



PROMOTE STUDENT PROFESSIONALISM

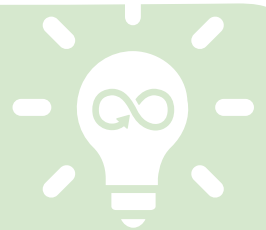
Teach students to use correct grammar, follow instructions, and engage in meaningful conversations about work.

USE A CONSISTENT LAYOUT

Use consistent graphics and layout elements on each of the pages in your online classroom.

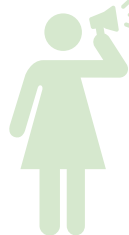


FOCUS ON CONTINUOUS IMPROVEMENT, NOT PERFECTION



KNOW where to go for help

Many other teachers and organizations are using e-learning tools. **Feel free to ask them to resolve your problems.**



STRUCTURE FIRST

**DESIGN SECOND
THIRD, TEST & CORRECT
THEN USE IT**

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