Part III

// Embarking on your Sustainability Journey

We embark on a three-part adventure to unlock the potential of sustainable practices in Higher Education Institutions (HEIs).

Exploring the world of SD, we delve into the diverse trajectories leading to sustainability and consider the ambitions and responsibilities of HEIs. We champion the idea of a whole-institution approach involving all stakeholders in this transformative journey.

To embark on your SD journey, we will take you through the practical implementation of the SDS4HEI Framework utilising a 7-step process model. We navigate the pathway to overcome regional challenges, striving to establish a baseline for sustainability. We analyse key impact areas like education, research, campus operations, outreach, and governance. We also delve into capacity mapping and gap analysis, using key performance indicators to assess progress. Additionally, we explore the pathway to unleash the full potential, scrutinising regional strengths and analysing organisational and governance structures.

Recognise that your starting point in the implementation process is highly flexible. Depending on your current position and progress, you can kick off this transformative journey from any juncture within the process model.

Throughout this journey, we provide you with checklists, tools, guiding questions and good practice examples to inspire and guide you toward a sustainable future.

1 SDS4HEI Framework Implementation

To successfully incorporate the theory-based framework model into HEIs' practices, adopting a process perspective is vital to ensure the model's practicality. Consequently, we introduce a 7-step implementation process model in the following sections. Before doing so, however, we would like to establish the relationship between the framework and process models.

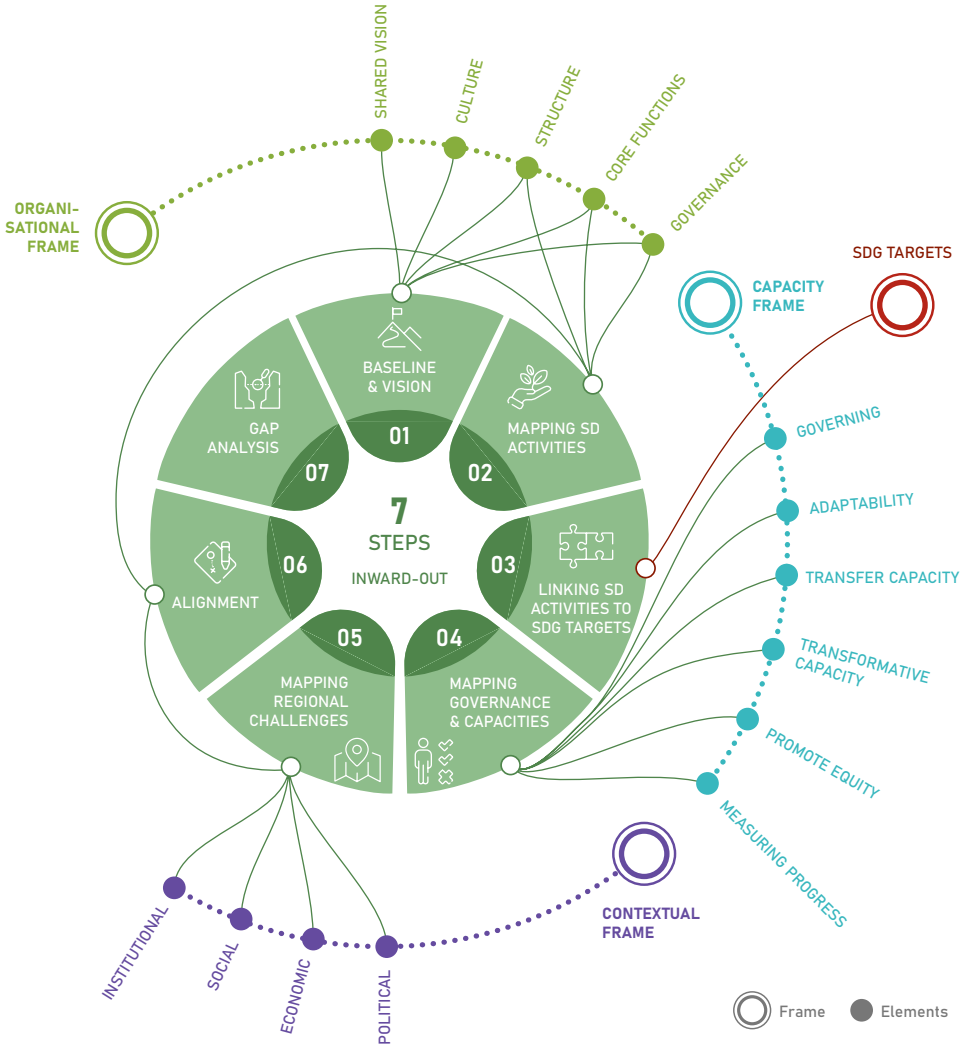


Figure 2.
Integrated Model

As depicted in Figure 2, the individual steps of the process model can be assigned to the framework model. The first two steps (baseline/vision and mapping activities) relate to the organisational framework, steps 3 and 4 are associated with the SDGs and the capacity framework, while the contextual framework is the subject of step 5 - Mapping Regional Challenges.

2 Pathway I: Overcoming Regional Challenges

How do we use the SDS4HEI Framework Model to implement SD in HEIs?

What is the baseline at our HEI? What SD activities are we already doing in our core areas?

The following steps provide **a process model for implementing SD strategies** at HEIs. Although accompanied by positive effects for the institution, such as profile-building, reputational gain, and contributing to stakeholder interests, SD should not be a means to an end but a regional joint endeavour towards sustainable futures. The process model connects the vision, mission, strategic plans, and organisational culture to purposeful SDG targets that support regional development. By choosing and striving towards meeting selected targets, immediate and feasible actions can be realised, progress can be measured, and long-term SD is given shape.

The process described in the model is non-linear and uses the **principle of countervailing influence.** HEIs may start by formulating a shared sustainability vision or identifying relevant regional SDG targets. For example, HEIs with a strong 'Third Mission' focus are advised to begin with the contextual frame. Consequently, **two possible paths** existed, asking either **(1) what is already done for SD at our HEI** or **(2) what potentials and challenges exist in our region.**

Path I.
Moving inward-out

Moving inward-out (-» **Figure 3**), the process begins with analysing the status quo at the HEI, resulting in the baseline and formulating a shared vision of sustainability — the ideal goal to reach **(Step 1).** HEIs must then map their SD activities in the different core areas **(Step 2).** Doing so will help identify potential for further progress and gaps. The identified SD activities will be linked to specific SGD targets **(Step 3).** Next, the skills of the internal stakeholders and the governance arrangements need to be analysed to assess the capacity to act **(Step 4).** That is followed by mapping regional challenges **(Step 5)** and aligning and visualising key findings **(Step 6)**. In the final step, a 'Gap Analysis' identifies relevant regional SDG targets not yet addressed by current activities **(Step 7).**

Figure 3.
SDS4HEI Framework – Inward-out

Suppose one chooses to take the reverse path (-» **Figure 4**), progressively moving from outward-in the process starts (Step 1) by analysing regional challenges (A) or [and] economic potentials (B), followed by linking identified challenges and potentials to specific SDG targets **(Step 2).** HEIs can formulate a shared vision of sustainability **(Step 3).** As a fourth step, the SD initiatives within HEIs are mapped to be evaluated and analysed to determine their impact on regional development. If such contribution is lacking, necessary adjustments to the activities will be made. Subsequently, HEIs map and connect their capacities and governance to their activities **(Step 5)** and visualise their core findings **(Step 6).** In so doing, HEIs can compare whether their targets match those needed in the regional context. The subsequent 'Gaps Analysis' reveals blank spots and areas of improvement **(Step 7).**

Path II.
Moving outward-in

In addition to the two primary flow directions, HEIs can use the SDS4HEI framework model to relate their SD strategy to the regional economy. This path is auspicious if the region already possesses a solid economic orientation towards the SDGs, for

example, through entrepreneurial activities. In this case, HEIs can foster this potential for development by supporting knowledge transfer through transdisciplinary collaborations and knowledge-based spinoffs. If a HEI chooses this path, it should (1) map the regional entrepreneurial potential, (2) link the potential to SDG targets, (3) map its entrepreneurial activities in its core areas, and (4) map its capacities.

Figure 4.
SDS4HEI Framework – Outward-in

But what do these steps entail? In the following, the seven steps are explicated by questions to be answered. In so doing, HEIs can ensure the design of a region- and institution-specific SD strategy, connecting immediate actions and outputs with medium-term outcomes, ideally leading to long-term impacts in a continuous process.

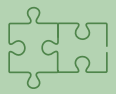
SDS4HEI Strategies will …

- increase the (potential) impact of your HEI in your regional ecosystem.
- address the creation of a shared understanding of guiding principles in sustainability.
- assist in aligning your SD strategy to other strategic plans of the HEI.
- encourage stakeholders to engage with and work together on SD by highlighting the benefits.
- facilitate international exchange and discussion between European HEIs.
- include monitoring measures and communication of progress.

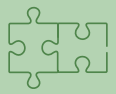
Overview of the Implementation Process (Inward-out)

GUIDING QUESTIONS

STEP 1 Shared Vision	STEP 2 Mapping SD Activities	STEP 3 Linking Activities to SDG Targets	STEP 4 Mapping Governance & Skills	STEP 5 Mapping Regional Challenges	STEP 6 Alignment	STEP 7 Gap-Analysis
• What does sustainability mean to us? • To which transformation modus (-» Table 14) can our subsystems, such as administration and different faculties, be assigned? Subsystems can be assigned to different modes. • Is SD already part of our strategic orientation? • Does our institution's vision refer to SD? And if so, where and how? • Do we already implicitly refer to SDGs in our value statements? And if so, which SDGs are we referring to? • Who are our trailblazers? In which areas do we find them? • Do our internal stakeholders discuss specific SD-related topics? If so,	• What SD activities are we already conducting in our core areas (education, research, outreach & partnering, entrepreneurial activities, governance and campus operations)? • Can these activities be grouped into thematic focus areas?	• Which of our ongoing SD activities contribute to what SDG target(s)? • Which SDG target(s) are reoccurring and thus could function as focal areas?	**Capacities** • Which capacities are most important for achieving the identified SDG target(s)? • Do we already possess this capacity, or do we have to build it/develop it further? • What capacities do we need to develop to move towards our institutional vision? **Governance** • What are our current governing structures (offices, networks, etc.)? • Who has the right to make decisions? Who is allowed to participate in decision-making processes? • Who controls what activities? Is this transparent?	• What challenges does our region face today and in future (next 20 years)? • Are regional stakeholders aware of the regional challenges and intend to act to overcome these (problem ownership)? • Are these discussed among or supported by the regional stakeholders? • Which targets help to minimise risks and challenges in our region? • How is the societal climate towards SD?	• What are our key findings from the previous steps? • Can we group these in separate 'blocks', for example, using the SDS4HEI framework model? • What do we want to visualise for what purpose? • What form of visualisation is easy for us to realise?	• Do our focus areas (clustered targets in current actions) align with the main regional challenges? • Do important regional SDG targets exist that we are not addressing (gaps)? If so, what are these? • Do we have the capacity to address these? • If so, what are possible new/modified actions/measures in our core areas addressing or contributing to these targets? • Are we aware of any important target(s) that the region is not yet aware of and that we need to communicate? • How can your actions go beyond your region

						
STEP 1 Shared Vision	**STEP 2** Mapping SD Activities	**STEP 3** Linking Activities to SDG Targets	**STEP 4** Mapping Governance & Skills	**STEP 5** Mapping Regional Challenges	**STEP 6** Alignment	**STEP 7** Gap-Analysis
what issues are currently discussed? • How do we envisage to orchestrate the process of SD implementation? • What is the culture like in our region? What are the values, beliefs and attitudes towards SD? • What is it that we want to sustain in supporting best quality of live in our region? • What is our shared vision of SD? What does a concrete image of a sustainable HEI look like?			• How is SD embedded in your organisation's rules and regulations? • Have SD-related incentive systems been established? • Who are the actors currently involved in SD? • To what extent do the existing governance structures and modes of governing facilitate or impede SD?			and positively affect a global scale
A shared vision is the prerequisite for all strategic SD activities. It entails values, beliefs and narratives concerning SD and thus gives meaning to actions and motivates stakeholders to become active		Instead of referring to SDGs, take a closer look at the sub-targets of the respective SDGs. Connecting these targets to regional challenges and potentials will make sustainability goals more feasible.	**Capacities:** The framework helps you to identify the most relevant capacities to reach a certain SDG target in a specific implementation area. By analysing the different variables that make up a capacity, you can figure out what your HEI needs to work on to strengthen this capacity.	Although climate change is a global challenge, regional efforts can make the SDGs more feasible. The combination of sustainability and regional development can facilitate sustainable ecosystems.	The process of getting there is more important than the visualisation itself, as it entails thoughtful reflection on the insights gained. Nevertheless, visualisations facilitate internal and external communication.	The Gap Analysis is no means to its end but an instrument to identify areas of improvement. Forasmuch, it should cover all core functions of your HEI while accounting for the regional context.

NOTE(S)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			Governance: Governance structures and modes of governing moderate transformative actions at HEIs. They must be flexible and open enough to allow for change while offering stability.			In doing so, the focus is not on identifying every gap but pinpointing those your organisation can meaningfully contribute to narrowing-

2.1 Towards a Baseline

Definitions of SD are vast in number and difficult to agree upon, especially if different stakeholders with diverse backgrounds (community, culture, academic discipline, etc.) are questioned. The complexity of the term often prevents the formulation of a concrete vision of a sustainable future. However, **a concrete vision is considered a necessary precursor to goal setting.** The motivation within the institution to work on SD can be dampened if sustainability is framed within a negative context, including associations with renunciation, prohibition and buzzwords. Ensuring a positive and constructive approach is crucial to sustaining motivation for SD. The organisational frame of the SDS4HEI framework model assists HEIs with formulating a shared vision of SD and motivates stakeholders to take action. Four capacities are necessary to develop and work on a shared vision of SD. HEIs must be able to:

Managing discourses

Following an **aspirational transformative narrative**, the term 'sustainability' has to become more optimistic again, moving away from its buzzword character, political implications and associations of prohibitions and renunciation. HEIs must orchestrate the discourse on sustainability and conflicting interests and goals and make interconnections more visible. Commit Committees can help to discuss and overcome contradictions by moderating a process of visualisation individual as well as 'We' interests, their relation to the HEI as a whole and assisting in a possible integration of interests. tees can help to discuss and overcome contradictions by moderating a process of visualisation individual as well as 'We' interests, their relation to the HEI as a whole and assisting in a possible integration of interests. Activities and efforts must be communicated to internal and external stakeholders, **pointing out opportunities for further actions.** Additionally, HEIs should introduce new perspectives by teaching relevant skills, leading to new professions.

Pioneers of a Culture of Sustainability

A 'Culture of Sustainability' relies on leadership support and **trailblazers who challenge preconceived mentalities,** strive to realign values and goals towards the endeavour of sustainability and develop new processes to encourage synergies across the HEI and beyond,

Telling Transformative Stories

Rather than information, narratives (the 'why') influence how people think and act concerning SD. Related narratives centre around the dystopian consequences, costs and threats of climate change. Transformative narratives, however, stress human's ability to shape society and environment and change existing systems. These narratives are often **bottom-up narratives** that tell a positive and engaging story, articulate a vision of where we want to go and **provide solutions for attaining this vision rather than articulating problems to avoid** (Hinkel et al., 2020). Therefore, the dialog between different stakeholders should be stimulated, for communication is the basis for actualising

culture. Developing suitable narratives should be treated as a parallel process to strategic development.

Rethinking the Role of HEIs

HEIs are exposed to diverse, complex and sometimes contradictory challenges, including the idea of sustainable development. A holistic and transformational approach to SD within a HEI requires systemic change and embraces new working methods based on the established infrastructure to cope with complexity.

HEIs are advised to critically reflect on the following questions to elaborate on a shared SD vision:

Elaborating a Shared SD Vision

—» What does sustainability mean to us?

—» To which transformation modus (-» **Table 14**) can our subsystems, such as administration and different faculties, be assigned? Subsystems can be assigned to different modes.

—» Is SD already part of our strategic orientation?

—» Does our institution's vision refer to SD? And if so, where and how?

—» Do we already implicitly refer to SDGs in our value statements? And if so, which SDGs are we referring to?

—» Who are our trailblazers? In which areas do we find them?

—» Do our internal stakeholders discuss specific SD-related topics? If so, what issues are currently discussed?

—» How do we envisage to orchestrate the process of SD implementation?

The **culture** within a HEI is always shaped by its surrounding culture. It follows that you also need to ask yourself:

—» What is the culture like in our region? What are the values, beliefs, and attitudes towards sustainable development?

A vision can then be formulated using a top-down approach or a preferable **participatory approach** involving relevant stakeholder groups in the process:

—» What is it that we want to sustain in supporting the best quality of life in our region?

—» What is our shared vision of SD?

—» What does a concrete image of a sustainable HEI look like?

Step 1.
Shared Vision

Note

A shared vision is the prerequisite for all strategic SD activities. Although referring to an ideal state in the future, the vision should be context-specific. It entails values, beliefs and narratives concerning SD and thus gives meaning to actions and motivates stakeholders to become active.

A vision of SD is influenced by the dominant culture and structure within a HEI. These aspects are subject to HEIs' history and the country-specific organisational types.

The following table can be used to overview the four different transformation modes of HEIs. For each subsystem, administration, faculties, and core areas, amongst others, the fit of the organisational form with the environmental requirements is crucial. Subsystems can be located in different transformation modes. For example, the development task of university administrations is predominantly seen as moving from mode 1.0 to mode 2.0 and professionalising processes to a greater extent. Depending on the modus, HEIs react differently to the challenge of sustainability in their core areas research, education, outreach and partnering, governance, campus operations and entrepreneurial activities. The modes must be viewed as parallel developments, possessing an additive character. To transform itself, a HEI has to go through each modus.

To help initiate SD at your HEI, the different areas, such as administration and faculties, **should look at which mode they are in and which elements from which mode are needed for the transformation towards an integrative and more sustainable HEI.**

Table 14. Transformation Modes of HEIs

	Traditional HEI (Order Thinking)	Modern HEI (Success Thinking)	Postmodern HEI (Considerate Thinking)	Integrative HEI 4.0 (Systems Thinking)
General Focus	• Input, authority and hierarchy; providing knowledge	• Number-oriented optimization, Output, efficiency and competition	• Dialogue with (internal) stakeholders and learners (especially students), transfer thinking, addressing socio-ecological issues	• Systematic solutions, co-creativity and sustainability
Education	• Teacher centric • Memorising standardised knowledge • Learning for recognition and academic titles	• Test-centric • Disseminating factual knowledge, analytical strategies and sound methods • Modules and projects • Learning and competitive game for future success	• Learner-centric • competencies-oriented transfer of self-reflective knowledge • Focus on dialogical seminars and project-based learning • Blended learning • Learning as personal growth	• System-centric, holistic • Whole-person approach • Dynamic balance between subject matter, group, individual learners and context • Research-based learning • Co-creative and mindful learning
Research	• Search for absolute truths • Self-concept: observing universal natural laws • Focus on solid theories based on both deduction and induction • Construction of disciplines	• Disciplinary research, standardisation of research, processes and peer review • Self-concept: testing and applying natural laws • Competition for grants • Measurement of success with rankings, impact factors, etc. • Focus on quantitative methods	• Inter- and transdisciplinary • Action research • Self-concept: Understanding social dynamics • Dialogical research processes dealing with societal issues • Integration of qualitative research methods	• Transdisciplinarity • Co-creative research • Self-concept: co-creating systemic transformation • Global action university • Living lab approach • Focus on real-life solutions • Idea of open science
Governance, Operations and Culture	• Focused on teaching, primary research and technological transfer • Building palaces of knowledge: impressive buildings and extensive libraries • Legitimacy by authority • Compliant by regulation, e.g., waste management and safety • One-dimensional approach to sustainability	• Focused on quantitative growth • Rapid growth in functional buildings with little energy awareness • Control of cash flows and process management • Entrepreneurial activity • Science parks • SD as a management task	• HEI as a place of meeting diverse yet like-minded people • Facilitating community and individual expression • Diversity management • Legitimacy by participation • Goal of climate neutrality • SD as a community task and third mission content	• HEI as space for encounter reflection and inspiration • Physical and virtual integration of different societal and ecological systems • Whole-institution approach to sustainability • Additional fourth mission: co-creation for sustainability

Source: Giesenbauer & Müller-Christ (2020)

The next step helps to identify strategic and operational focus areas by mapping existing activities in the core areas of your HEI. Following the recommendations of the Guide to Sustainable Higher Education Development (see Rat für nachhaltige Entwicklung), HEIs can use the **comply-or-explain-principle** to discuss why they choose to implement certain SD actions (comply) or plausibly explain why they choose against them (explain). This method might be chosen to account for the different types of HEIs.

Mapping SD Activities in your HEI

—» What SD activities are we already conducting in our core areas (education, research, outreach & partnering, entrepreneurial activities, governance and campus operations)?

—» Can these activities be grouped in thematic focus areas?

Step 2.
Mapping SD Activities

TOOLS

Tools for Identifying SD Activities

- **SLS –Sustainable Leadership Scoreboard** (EAUC) (https://www.eauc.org.uk/sustainability_leadership_scorecard)
- **SDG Actions Platform** (United Nations) (https://sdgs.un.org/partnerships)
- **RSP – Rounder Sense of Purpose** (Erasmus+) (https://aroundersenseofpurpose.eu/sdgs)

Tool 3.
Identifying SD Activities

The following tables assist you in getting an overview of the SD activities in each core area. At first, activities in the core areas should be categorised and briefly described, following the given example. The provided categories are illustrative focal points for potential sustainable development measures, which can be supplemented by the focus areas specific to your HEI.

Then, you can assign a certain value to the specific activities, showing how strongly the activity influences the four sustainability dimensions (social, economic, ecological, and cultural), ranging from strong positive (+++), medium positive (++), low positive impact (+) to no impact (0) and on the other side of the scale from low negative (-), medium negative (--) and strong negative impact (---). Additionally, the activity can either relate or not relate to the shared institutional vision (yes/no) and contribute to particular SDG targets. The SD activities are most likely aimed at several different targets. Therefore, Step 6 will help you to compare your HEI's efforts with regional challenges and potentials to make an informed decision on the most important targets.

2.1.1 SD in Education

Qualified students aware of sustainable futures are our most important output.

To effectively address the SDGs, HEIs need to equip professionals, students and citizens with the **skills, knowledge, and mindsets to tackle the complex SD challenges** articulated by the SDGs through whichever career or life path they take. Initiatives can be introduced through educational programs, where sustainability is integrated as a didactic concept.

Activities in 'Education' should aim at (1) developing a general understanding of SD and the SDGs; (2) promoting cross-cutting skills to make sense of complex challenges; (3) providing specific knowledge and skills for how professions can contribute to the SDGs; (4) creating an entrepreneurial mindset to start a green business or implement green knowledge/competences into further business ideas, as well as (5) a mindset to contribute to social change. To that end, students should cultivate critical and creative thinking skills, engage in authentic interdisciplinary learning activities and develop a value system that emphasises responsibility to self, others and the planet.

Table 15.
Checklist "SD in Education"

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
SD as part of the curriculum						
Example IMT-BS: Social Innovation Game	++	+++	+++	++	Yes	All of the SDGs and their targets (indirectly); SDG4 (Quality Education), SDG9 (Industry, Innovation, & Infrastructure, SDG10 Reduced Inequalities, SDG11 Sustainable Cities & Communities, SDG17 (Partnerships) (directly
Extracurricular Activities						
Employability						
Entrepreneurial + Sustainable Skills						

TOOLS

Tools for Integrating SD in Education

- **7 Steps Series** (Plymouth University) (https://www.plymouth.ac.uk/about-us/teaching-and-learning/guidance-and-resources/7-step-series)
- **17 Rooms** (The Brookings Institute) (https://www.brookings.edu/projects/17-rooms/)
- **Education for SD Goals – Learning Objectives** (UNESCO) (https://unesdoc.unesco.org/ark:/48223/pf0000247444.locale=en)
- **The ESD for 2030 toolbox** (UNSECO) (https://en.unesco.org/themes/education-sustainable-development/toolbox/implementation - esd-impl-42)
- **ISSUE** – Innovative Solutions for Sustainability in Education (Erasmus+ / Cologne Business School) (https://www.issue-project.eu/sdg-toolbox)

2.1.2 SD in Research

Through research, we create new insights and knowledge for SD and SDGs.

A central concern is finding a balance between embedding sustainability and upholding the autonomy of research and teaching. With growing demands for strategic implementation of SD, HEIs are recommended to **foster collaborations for cross-cutting research on and with SD.** Collaboration should be strengthened with different research institutions, disciplines (interdisciplinary), cities, companies, and citizens (transdisciplinary). Research should focus on solutions for real-life challenges, innovations and ideas for (global actions). Sustainability sciences is a field of research that explores the bridge between the world as it is and the world as it should be. As there is no definitive knowledge about SD, guiding questions for implementing actions in different academic disciplines could be:

What entry points to SD does an academic discipline or research topic possess?

What impact does my research have on SD and regional development?

Which solutions to regional and SDG-related challenges does it offer?

Table 16.
Checklist "SD in Research"

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
Research for practical solutions						
Example WH: Research Challenge Sustainability	+	++	+++	+	No	SDG 13.3 Building knowledge and capacity to meet climate change. A (Special and Differential Treatment for Developing Countries)
Responsible Research and Innovation (RRI) / Research with SD						
Transdisciplinary Collaborations						
Participatory Research						

2.1.3 SD in Campus Operations

The SDGs are still a very abstract concept. HEIs must act as role models by adopting sustainable practices and turning knowledge into concrete action.

Strategies in 'Campus Operations' include resource management, mobility and greenhouse gas emissions, finances, and green buildings. On campus, sustainable practices can be experimented with and advocated for, and their positive impacts can be readily observed, as they are the most straightforward to quantify. By implementing measures that, for example, make the campus more accessible (social) or reduce energy consumption (ecological), HEIs have an immediate effect on the dimensions of sustainability. By **'leading by example'**, providing a practical learning ground for innovations, and transmitting values and beliefs through the 'hidden curriculum', on-campus measures are the most relevant for the 'cultural dimension'. Sustainable campus experiences could enable the discussion on global societal challenges, foster ecological literacy, and eventually lead to changed values and behaviours.

As institutional change mostly depends on establishing new routines, **cultivating a culture of sustainability within the campus community has to become a cornerstone** of the HEIs' efforts. Everett (2008: 243) proposes that internal stakeholders must develop an understanding of the "university's metabolism", for example, through campus sustainability praxis, in which on-campus experiential learning in interdisciplinary groups would lead to institutional change.

Table 17.
Checklist "SD in Campus Operations"

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
Resource Management						
Example BUU: Waste management centre	0	0	+++	++	Yes	SDG 12.4 Responsible Management of Chemicals and Waste)
Mobility						
Campus Design						

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
Hidden Curriculum						
Economics & Finances						
Campus Practices						

Tools for Campus Operations

- **University's ecological footprint** (Erasmus+) (https://www.eusteps.eu/)

Tool 5.
Campus Operations

2.1.4 SD in Outreach & Partnering

We need to identify areas where stakeholders can make meaningful contributions to SD through their actions and expertise. Moreover, it's essential to ensure that innovations generate societal value.

Social responsibility is considered the foundation and objective of an excellent university. As part of their Third Mission, HEIs have begun to intensify internal stakeholder engagement, including students, staff, and leadership, and engage with public actors, such as governments, NGOs, schools, community organisations, and the private sector (e.g. companies). In doing so, HEIs introduced **different formats of transdisciplinary collaboration,** including 'partnership platforms', event series and hubs for collaborative activities. They work with businesses and the wide community in innovation-oriented projects, are part of sustainability networks and enable knowledge exchange to

face global challenges. Stronger cooperation with external stakeholders on SD could tackle **how companies and organisations can be motivated to join the path.**

A **stakeholder-centred strategy** could use (1) an effective explanation of innovations, coupled with (2) the prompt demonstration of visible successes, (3) complemented by consistent communication, and (4) reinforcing achievements over time.

Table 18.
Checklist "SD in Outreach & Partnering"

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
Transdisciplinary Collaborations						
Project with local businesses on how to reduce water waste in car washes	0	+++	+++	+	Yes	SDG 6.3. By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally.
Citizen Science Formats						
Public Welfare						
Qualification Offerings						
Network Activities						

2.1.5 SD and Entrepreneurial Activities

> We can open new perspectives for business ideas and professions. By teaching entrepreneurial and sustainable skills, we ensure employability.

HEIs assist the great transformation and regional development through creating new knowledge, innovation and teaching new skills. By combining sustainable skills with entrepreneurial skills in entrepreneurial education, **future leaders** gain more sustainable perspectives on green business practices and new professions can be created. Additionally, HEIs can align their **sustainability-oriented entrepreneurial support.** One challenge, however, is to ensure that university spin-offs do not remain small but can have a long-term impact on the region.

Table 19.
Checklist 'SD in Entrepreneurial Activities'

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
Entrepreneurial Support						
Impact Start-up Hub	++	+++	+++	++	Yes	SDG Target 8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalisation and growth of micro-, small- and medium-sized enterprises, including through access to financial services
Equal Opportunities						
Incentive Systems						
Regional Cooperation						

2.1.6 Governing SD

We can structurally embed SD in our institution through rules, regulations, incentive systems and (new) modes of governing.

The governance and modes of governing largely impact the social and cultural dimension of SD and the successful implementation of SD. It refers to how responsibilities and power are distributed in the institution. Participation, equal opportunities, qualifications and public welfare become important factors for SD and are part of the social dimension.

While leadership and motivated teaching staff play a vital role, SD still needs to be integrated into everyday practices within HEIs but rather perceived as a task requiring extra time, attention and financial resources. Therefore, it is essential to recognise and give leeway for SD efforts. A significant point to consider is financing as a motivator for HEIs aiming at sustainability. This linkage can serve as a powerful lever, mirroring the incentive system for SD found in the business sector.

Specific structures and dedicated staff, for example, sustainability officers, are essential to make SD visible, communicate actions and motivate stakeholders to participate. Additionally, increasing visible activities to set an exemplary standard could be highly beneficial. HEIs need participatory governance structures dedicated to SD, such as a head of the sustainability officer or green offices which actively engage students. These governance structures would act as the **interface between SD networks, regional stakeholders and the university, communicate SD** endeavours, including solutions implemented and collect knowledge and ideas for transformative processes.

Effectively governing SD at HEIs is heavily contingent on obtaining legitimacy and widespread acceptance. In other words, many stakeholders must reach a consensus and fully commit to embracing the comprehensive institution-wide approach.
Concerning top-down vs. participatory procedures within the HEI, using incentive systems is frequently the only viable approach, as there is currently no obligation to meet key performance indicators (KPIs) as mandated by policies. Accordingly, there is a need for more external incentives, such as funding next to internal incentives, such as motivated trailblazers or reduced teaching obligations in favour of alternative forms of teaching and researching sustainability. SD could be implemented in recruiting by integrating goal-setting conversations when hiring new educators. Financial incentives, particularly potential legislative support, can greatly influence universities' sustainable activities.

Our Activities	Social	Economic	Ecological	Cultural	In line with vision	SDG targets addressed
Participatory Structures						
New Governance Structures						
Hiring sustainability manager	++	0	++	+++		SDG target 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
New Modes of Governing						
Incentive Systems (internal/external)						
Rules, Regulations & Policy						

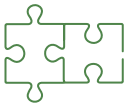
Table 20.
Checklist 'Governing SD'

The SD measures described in the core areas will address multiple SDG targets simultaneously. There may be tensions and conflicts between these targets, but also synergies might be detected. As a next step, you should limit yourself to a few targets that can be implemented realistically and that align with the institutional vision. After this step, focus areas might manifest themselves in reoccurring SDG targets.

Linking Activities to SDG Targets

—» Which of our ongoing SD activities contribute to what SDG target(s)?

—» Which SDG target(s) are reoccurring and thus could function as focal areas?



Step 3
Linking Activities to SDG Targets

Note

Instead of referring to the SDGs, you should take a closer look at the sub-targets of the respective SDGs. Connecting these targets to regional challenges and potentials will make sustainability goals more feasible.

TOOLS

Tools for Linking SD Activities to SDG Targets

- **17 SDGs and their 169 Targets** (United Nations) (https://sdgs.un.org/goals)
- **Interactive Map of SDG Performance** (SD Report) (https://dashboards.sdgindex.org/map)

Tool 6.
Linking SD Activities to SDG Targets

Figure 5 illustrates the linkage of activities to SDG targets. The inner circle represents the organisational framework, while the outer one represents the contextual framework (see section 6.3). Between these two circles, the SDGs and their associated targets are displayed.

For instance, your organisation's SD activities are depicted as an orange dot and connected to SDG 5, target 5.5, which is to 'Ensure full participation in leadership and decision-making' (shown as a grey dotted line between the orange dot and the SDG target).

As detailed in section 6.3, a similar approach is taken concerning regional challenges, represented by orange dots in the contextual framework. While your SD activities and regional challenges may align, they can also diverge, as illustrated in the second example.

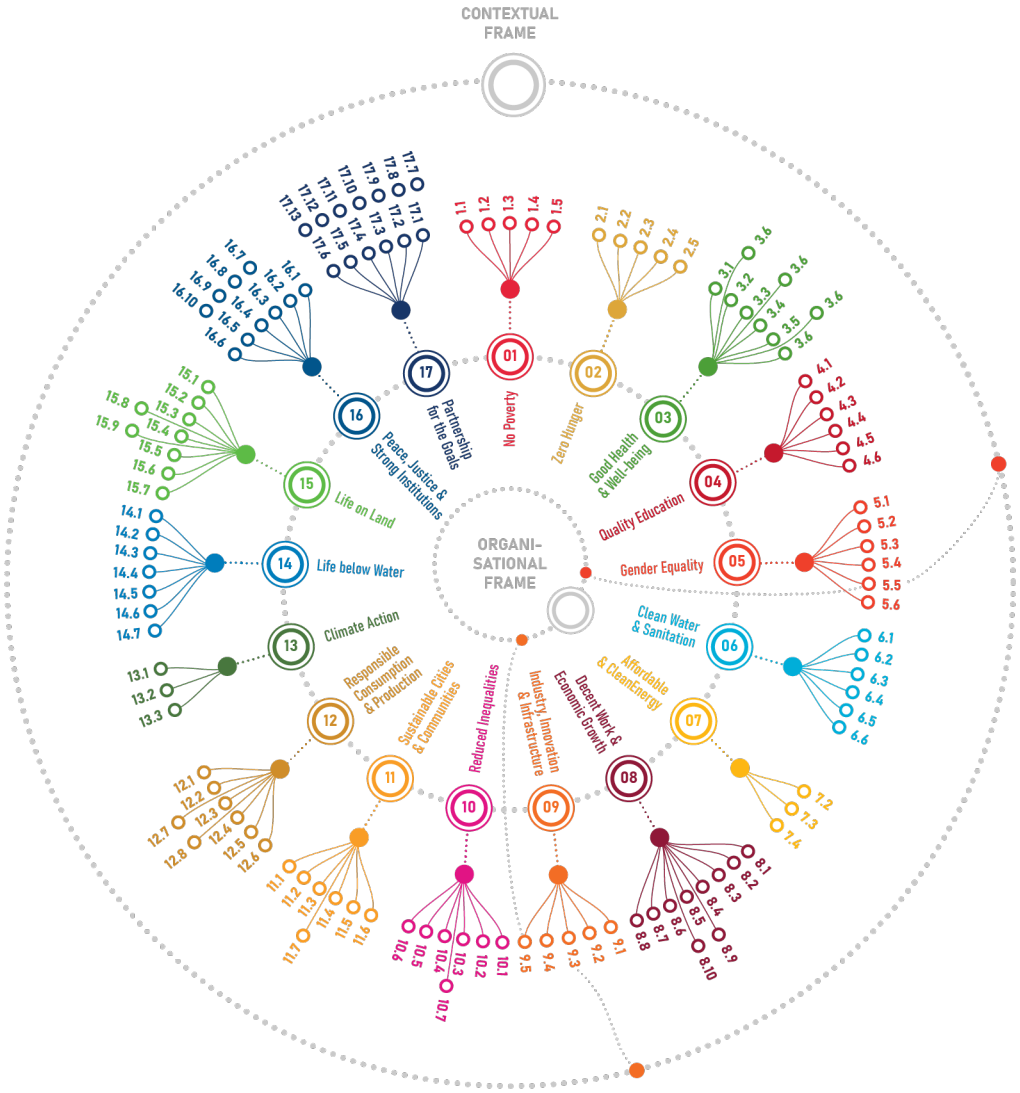


Figure 5.
Linking Activities to SDG Targets

SDG 1. No Poverty		SDG 2. Zero Hunger		SDG 3. Good Health & Well-being	
1.1	Eradicate extreme poverty	2.1	Universal access to safe & notorious food	3.1	Reduce maternal mortality
1.2	Reduce poverty by at least 50%	2.2	End all forms of malnutrition	3.2	End all preventable death under 5 years age
1.3	Implement social protection systems	2.3	Double the production of productivity & income of small farmers	3.3	Fight communicable diseases
1.4	Equal rights to ownership, basic services, technology and economic ressources	2.4	Sustainable food production & resilient agricultural practices	3.4	Reduce mortality form non-communicable diseases and promote mental health
1.5	Build resilience ecological, economic, social disasters	2.5	Maintain the genetic diversity	3.5	Reduce and prevent substance abuse

SDG 4. Quality Education		SDG 5. Gender Equality		3.6	Reduce road injuries and death
4.1	Free primary and secondary education	5.1	End discrimination against women and girls (w/g)	3.7	Universal access to sexual and reproductive care, family planning and education
4.2	Equal access to pre-primary quality education	5.2	End all violence against and exploitation of w/g	3.8	Achieve universal health coverage

4.3	Equal access to affordable, technical, vocational & higher education
4.4	Increase the number of people with skills for financial success

SDG 4. Quality Education

4.5	Universal literacy & numeracy
4.6	Education for SD and global citizenship

SDG 7. Affordable & Clean Energy

7.1	Universal access to modern energy
7.2	Increase global percentage of renewable energy
7.3	Double improvement in energy efficiency

SDG 9. Industry, Innovation & Infrastructure

9.1	Develop sustainable, resilient & inclusive infrastructure
9.2	Promote inclusive and sustainable industrialization
9.3	Increase access to financial services & markets
9.4	Upgrade all industries & infrastructure for sustainability
9.5	Enhance research and upgrade industrial technologies

SDG 11. Sustainable Cities & Communities

11.1	Safe and affordable housing
11.2	Affordable and sustainable transportation systems
11.3	Inclusive and sustainable urbanisation
11.4	Protect the worlds cultural and natural heritage
11.5	Reduce adverse effects of natural disaster
11.6	Reduce the environmental impact of cities
11.7	Provide Access to safe & inclusive green public spaces

SDG 12. Responsible Consumption & Production

12.1	Implement the 10-year sustainable consumption & production framework
12.2	Sustainable management & use of resources
12.3	Have global per capita food waste
12.4	Responsible management of chemicals & waste
12.5	Substantially reduce waste generation
12.6	Encourage companies to adopt sustainable practices and sustainability reporting
12.7	Promote sustainable public procurement practices

5.3	Eliminate forced marriage and genital mutilation
5.4	Value unpaid care and promote shared domestic responsibilities

SDG 5. Gender Equality

5.5	Ensure full participation in leadership & decision-making
5.6	Universal access to reproductive health & rights

SDG 8. Decent Work & Economic Growth

8.1	Sustainable economic growth
8.2	Diversify, innovation and upgrade for economic productivity
8.3	Promote policies to support job creation & growth enterprises
8.4	Improve resource efficiency in production & consumption
8.5	Full employment and decent work with equal pay
8.6	Improve youth employment, education & training
8.7	End modern slavery, trafficking & child labour
8.8	Protect labour rights & promote safe working enviro.
8.9	Promote beneficial and sustainable tourism
8.10	Universal access to banking, insurance, financial services

SDG 14. Life below Water

14.1	Reduce marine pollution
14.2	Protect and restore ecosystems
14.3	Reduce ocean acidification
14.4	Sustainable fishing
14.5	Preserve costal and marine areas
14.6	End subsidies contributing to overfishing
14.7	Increase the economic benefits from sustainable use of maritime resources

3.9	Reduce illnesses and death from hazardous chemicals and pollution

SDG 6. Clean Water and Sanitation

6.1	Safe and affordable drinking water
6.2	Open defection and provide access to sanitation ...
6.3	Improve your water quality, wastewater treatment and safe reuse
6.4	Increase water-use efficiency and ensure freshwater supplies
6.5	Implement integrated water resources management
6.6	Protect & restore water-related ecosystems

SDG 10. Reduce Inequalities

10.1	Reduce income inequalities
10.2	Promote universal social, economic & political inclusion
10.3	Ensure equal opportunities and end discrimination
10.4	Adopt fiscal and social policies that promote equality
10.5	Improve regulation of global financial markets & instruments
10.6	Enhance representation for developing countries in financial institutions
10.7	Responsible & well-managed migration policies

SDG 13. Climate Action

13.1	Strengthen resilience an adaptive capacity to climate related disasters
13.2	Integrate climate change measures into policies and planning
13.3	Build knowledge & capacity to meet climate change

SDG 15. Life on Land

15.1	Conserve and restore terrestrial & freshwater ecosystems
15.2	End deforestation & restore degraded forests
15.3	End desertification & restore degraded land
15.4	Ensure conversation of mountain ecosystems
15.5	Protect biodiversity & natural habitats
15.6	Promote access to genetic resources and fair sharing of the benefits
15.7	Eliminate poaching & trafficking of protected species
15.8	Prevent invasive alien species on land and in water
15.9	Integrate ecosystem and biodiversity in governmental planning

12.8	Promote universal understanding of sustainable lifestyles

SDG 16. Peace, Justice & Strong Institutions	
16.1	Reduce violence everywhere
16.2	Protect children from abuse, exploitation, trafficking & violence
16.3	Promote the rule of law & ensure equal access to justice
16.4	Combat organised crime and illicit financial & arms flows
16.5	Substantially reduce corruption & bribery
16.6	Develop effective, accountable & transparent institutions
16.7	Ensure responsive, inclusive & representative decision-making
16.8	Strengthen the participation in global governance
16.9	Provide universal legal identity
16.10	Ensure public access to information & protect fundamental freedoms

SDG 17. Partnership for the Goals	
17.1	Mobilise resources to improve domestic revenue collection
17.2	Implement all development assistance commitments
17.3	Mobilise financial resources for developing countries
17.4	Assist development countries in attaining debt sustainability
17.5	Invest in least developed countries
17.6	Knowledge sharing & cooperation for access to science, technology and innovation
17.7	Promote sustainable technologies to developing countries
17.8	Strengthen the science, technology and innovation capacity for least developed countries
17.9	Enhance SDG capacity in developing countries
17.10	Promote a universal trading system under the WTO
17.11	Increase the export of developing countries
17.12	Remove trade barriers for least developed countries
17.13	Enhance global macroeconomic stability

2.2 Capacity Frame – Mapping Governance & Skills

Further, striving for successful SD implementation calls for mapping the skills and capacities available and the governance and modes of governing in the HEI and matching them with the necessary capacities to act towards SD effectively.

All capacities are important for the strategic implementation of SD at HEIs. By highlighting the critical capacities of a measure in a core area, key stakeholders can be identified, and governance measures can be planned. After getting an overview of the activities already being done in the institutions, HEIs must analyse how these activities relate to their capacities. This linking is done by **drawing lines from the activities in the different core areas to the most important related capacities.** For example, entrepreneurial support depends on the HEI's transfer capacity ('praxis'), while 'education' and 'research' impact the capacity to 'promote equity'.

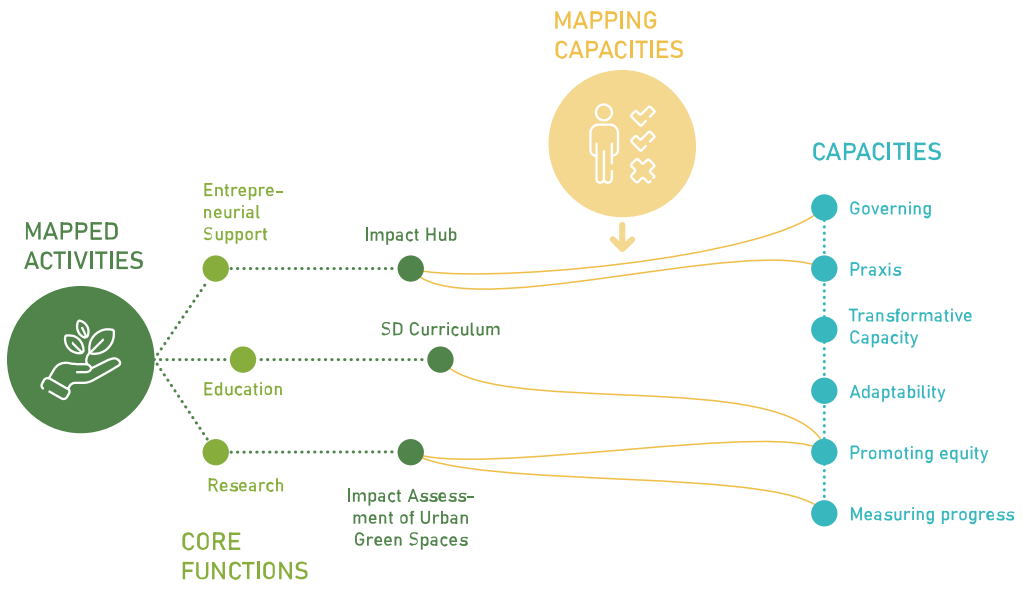


Figure 6.
Mapping Capacities

The following questions can guide the mapping of capacities:

Mapping Capacities

—» Which capacities are most important for achieving the identified SDG target(s)?

—» Do we already possess this capacity, or do we have to build it/develop it further?

Step 4a.
Mapping Capacities

—» What capacities do we need to develop to move towards our institutional vision?

Note

Not every HEI possess every capacity. The framework helps you to identify the most relevant capacities to reach a certain SDG target in a specific implementation area.

By analysing the different variables that make up a capacity, you can figure out what your HEI needs to work on to strengthen this capacity.

Since governance is an overarching capacity equally necessary for every strategy, HEIs must analyse their structures. The following questions can guide the mapping of governance structures and modes of governing:

Mapping Governance and Modes of Governing

—» What are our current governing structures (offices, networks, etc.)?

—» Who has the right to make decisions? Who is allowed to participate in decision-making processes?

—» Who controls what activities? Is this transparent?

—» Who do I need to talk to or engage to initiate SD processes?

—» How is SD embedded in our organisation's rules and regulations?

—» Have SD-related incentive systems been established?

—» Who are the actors currently involved in SD?

—» Which elements out of the four modes (-» **Table 14**) assists us in becoming mor sustainable?

—» To what extent do the existing governance structures and modes of governing facilitate or impede SD?

Note

Governance structures and modes of governing moderate transformative actions at HEIs. They must be flexible and open enough to allow for change while offering stability.

Step 4b.
Mapping Governance & Modes of Governing

By answering the previous questions, HEIs can achieve their set SDG targets through transparent rules, control and decision-making mechanisms. Relevant stakeholders and their interests can be identified and managed. Participation helps to build trust and promotes accountability.

2.3 Contextual Frame – Regional Challenges

The fifth step centres on mapping regional challenges. Following the idea of the third mission, HEIs should aim to contribute to regional and societal development. By looking at the 'contextual frame', encompassing the diverse context factors within a region, HEIs can align their strategic orientation with regional challenges.

Mapping Regional Challenges

—» What challenges does our region face today and in future (next 20 years)?

—» Are regional stakeholders aware of the regional challenges and intend to act to overcome these (problem ownership)?

—» Are these discussed among or supported by the regional stakeholders?

—» Which targets help to minimise risks and challenges in our region?

—» How is the societal climate towards SD?

Note

Although climate change is a global challenge, regional efforts can make the SDGs more feasible. The combination of sustainability and regional development can facilitate sustainable ecosystems.

Step 5.
Mapping Regional Challenges

2.4 Alignment – Binding Things Together

Aligning and **visualising** the previous steps' core findings is at the heart of Step 6. Aligning the core findings with the previous five steps of the process model serves as the vital culmination of your journey toward SD in your organisation. By weaving together the insights and outputs from these foundational steps, you can create a cohesive framework that allows you to identify synergies, bridge gaps, and ensure that the overarching vision is harmoniously realised (see Step 7). Such alignment assists you in streamlining your endeavours and empowers you to make informed decisions and take purposive actions.

In this realm, visualising might be beneficial to underpin your findings. There exist several ways to represent SD challenges and core findings. Infographics, maps, data visualisation tools, or network visualisations visualising the connections between the HEI's internal and regional SDG targets can be an effective way of visualisation.

Aligning & Visualising Key Findings

—» What are our key findings from the previous steps?

—» Can we group these in separate 'blocks', for example, using the SDS4HEI framework model?

—» What do we want to visualise for what purpose?

—» What form of visualisation is easy for us to realise?

Note

The process of getting there is more important than the visualisation itself, as it entails thoughtful reflection on the insights gained. Nevertheless, visualisations facilitate internal and external communication.

Step 6.
Alignment

2.5 Gap Analysis – Unveiling Blank Spots

In the seventh step, a **gap analysis** is conducted to unveil to what extent the current SD activities at your HEI contribute to overcoming the regional challenges and thus achieving the regional SDG targets. The analysis reveals which locally significant SDG targets still lack concrete actions. As part of the gap analysis, HEIs need to realign their actions to regional targets. In so doing, HEIs should limit themselves to the most important targets that can be implemented realistically and find support structures in the region ('Contextual Frame').

Gap Analysis

—» Do our focus areas (clustered targets in current actions) align with the main regional challenges?

—» Do important regional SDG targets exist that we are not addressing (gaps)? If so, what are these?

—» Do we have the capacity to address these?

—» If so, what are possible new/modified actions/measures in our core areas addressing or contributing to these targets?

Step 7.
Gap Analysis

—» Are we aware of any important target(s) that the region is not yet aware of and that we need to communicate?

—» How can your actions go beyond your region and positively affect a global scale?

Note

The Gap Analysis is no means to its end but an instrument to identify areas of improvement. Forasmuch, it should cover all core functions of your HEI while accounting for the regional context. In doing so, the focus is not on identifying every gap but pinpointing those your organisation can meaningfully contribute to narrowing.

2.6 Key Performance Indicators (KPI)

Key performance indicators consist of **achievable, reliable, comparable, scalable, consistent and context-specific data** that show the effect of sustainability activities and are internally and externally communicated to make efforts visible (Rat für nachhaltige Entwicklung, 2023). Only where quantitative operationalisation is meaningful and possible indicators of goal achievement should be developed (Hochschulrektorenkonferenz, 2018). Monitoring and reporting can be viewed as a **'dynamic' tool'** for self-assessment and communication, making SD visible to stakeholders, reflecting current pathways, planning changes, and initiating new actions (Fleacă et al., 2019).

Input-output models are most often used for depicting the impacts of HEIs, for example, socioeconomic, educational and non-academic impacts (policy, research uptake in business practice). HEIs should focus on assessing outcomes (e.g. sustainability literate students) instead of activities' outputs (e.g. curriculum development, students taught). That is, they should appropriate means of gauging progress and setting objectives related to outcomes (e.g., staff and student perceptions) rather than outputs (e.g., courses developed). Helpful indicators are also provided by the three most **popular ranking systems** for HEIs — the Times Higher Education (THE) University Rankings, the Quacquarelli Symonds (QS) World University Rankings, and the Shanghai Academic Ranking of World Universities.

TOOLS

Ranking Systems Assisting Formulation of KPIs

- **THE University Impact Ranking** (THE - The Times Higher Education) (https://www.timeshighereducation.com/)
- **QS World Sustainability Ranking** (https://www.topuniversities.com/qs-world-university-rankings)
- **STARS – Sustainable Tracking, Assessment and Rating Systems** (https://stars.aashe.org)
- **UI GreenMetric Ranking** (https://greenmetric.ui.ac.id/about/welcome)

Tool 7.
Formulating KPIs

As the cultural dimension is considered the cornerstone for SD, a KPI must be developed for measuring the impact on the 'hearts and minds' of stakeholders, leading to long-term behavioural change. Since the rankings mentioned above do not account for the cultural dimension, it might be useful to consider elaborating a 'Theory of Change', which provides maximum flexibility to integrate qualitative indicators such as perceptions and lived experiences.

Theory of Change

A Theory of Change (ToC) or Logic Model serves as a methodology for comprehending and elucidating the change process and how interventions bring about the desired outcomes and impacts within SD in HEIs. Crafting a ToC entails defining the envisioned impact and working in reverse to delineate the outcomes and immediate outputs. This process encompasses scoping, identifying long-term impacts, intermediate outcomes, outputs, interventions, and indicators, and monitoring and assessing progress toward achieving the outcomes and impacts.

TOOLS

Tools relating to Crafting of a Theory of Change/Logic Model

- **Social Impact Navigator** (Phineo) (https://www.phineo.org/uploads/Downloads/PHINEO_Social_Impact_Navigator.pdf)
- **resonance** (https://www.resonanceglobal.com/blog/what-is-theory-

Tool 8.
Theory of Change

of-change-and-why-it-is-important-to-sustainability-and-impact-initiatives)

- **List of software assisting you in crafting your ToC/Logic Model** (Better Evaluation) (https://www.betterevaluation.org/tools-resources/theory-change-software)

3 Pathway II: Allowing Potentials to Blossom

You can also use the SDS4HEI framework model the other way around to develop pathways **from the outside (contextual perspective) to the inside** (aligning strategies and goals). Such an approach is especially beneficial for HEIs emphasising their Third Mission and those that have not yet established a unified sustainability vision but seek to promote transdisciplinary collaborations, encourage participation, and align their SD initiatives with regional development goals. For HEIs with a strong connection to entrepreneurial education, entrepreneurial activities and economic development, this section also provides an alternative **potential-oriented approach (B),** focusing on advancing the regional ecosystem. In contrast, the first **challenge-oriented approach (A)** tries to find solutions to specific problems.

As shown in **Figure 4** and below, though the steps to be conducted are the same, their order varies. That is, instead of starting with mapping the HEIs SD activities, the process starts with analysing regional challenges (A) or [and] economic potentials (B). This initial step is followed by linking identified challenges and potentials to specific SDG targets (Step 2), formulating a shared vision of sustainability (Step 3), mapping HEIs' ongoing SD activities (Step 4), mapping HEIs' capacities and governance (Step 5), aligning and visualising core findings (Step 6) and 'Gap Analysis' (Step 7).

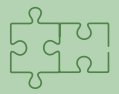
Overview of the Implementation Process (Outward-in)

GUIDING QUESTIONS

STEP 1 Mapping Regional Challenges/Potentials	STEP 2 Linking Challenges/ Potentials to Targets	STEP 3 Elaborating a Shared Vision	STEP 4 Mapping your HEIs SD Activities	STEP 5 Mapping Governance & Skills	STEP 6 Alignment	STEP 7 Gap-Analysis
Challenges • What SDGs and efforts are described in our national and local strategies? • Do incentive systems driving SD exist in our region? If so, what do they look like? • What challenges does our region face today and in the future (in the next 20 years)? • Are regional stakeholders aware of the regional challenges and intend to act to overcome these (problem ownership)? • Are these discussed among or supported by the regional stakeholders? • Which targets help to minimise risks and	• Which SDGs are pivotal in addressing the challenges encountered in our region? • Which SDG targets can contribute to addressing the identified challenges within the dimensions of sustainability and, ideally, bolster the region's resilience? • What SDG targets a pivotal in strengthening our region's economic potential in due consideration of social and ecological aspects? • Do spin-offs and start-ups consider or aim to align with specific SDGs? If yes, which ones do they target? • Are any SDG targets mentioned in	• How is SD understood in our region? • Which SDGs are important in our region to drive SD? • What is it that should be sustained? • Who are the supporters and opponents to engage?	**SD Activities** • What SD-related activities are we already undertaking in your core areas (education, research, outreach & partnering, entrepreneurial activities, campus operations, governance)? • How do these activities contribute to meeting regional challenges? • What positive/negative, intended/unintended impacts can your actions have on our community? • How can our actions surpass our region and positively affect the global level (e.g., knowledge transfer)?	• What challenges does our region face today and in future (next 20 years)? • Are regional stakeholders aware of the regional challenges and intend to act to overcome these (problem ownership)? • Are these discussed among or supported by the regional stakeholders? • Which targets help to minimise risks and challenges in our region? • How is the societal climate towards SD?	• What are our key findings from the previous steps? • Can we group these in separate 'blocks', for example, using the SDS4HEI framework model? • What do we want to visualise for what purpose? • What form of visualisation is easy for us to realise?	• Do our focus areas (clustered targets in current actions) align with the main regional challenges? • Do important regional SDG targets exist that we are not addressing (gaps)? If so, what are these? • Do we have the capacity to address these? • If so, what are possible new/modified actions/measures in our core areas addressing or contributing to these targets? • Are we aware of any important target(s) that the region is not yet aware of and that we need to communicate?

STEP 1 Mapping Regional Challenges/Potentials	STEP 2 Linking Challenges/ Potentials to Targets	STEP 3 Elaborating a Shared Vision	STEP 4 Mapping your HEIs SD Activities	STEP 5 Mapping Governance & Skills	STEP 6 Alignment	STEP 7 Gap-Analysis
challenges in our region? • What capacities do we need to develop to achieve our institutional vision? • How is the societal climate towards SD? • What resources are considered valuable in our region? **Potentials** • How is our regional ecosystem organised (production/consumption, value chains, employment patterns)? • Are there successful sustainability-oriented spin-offs/start-ups (including not-for-profit ones) in our region? And if so, how many? • Is our region specialised in a sector or field?	regional/national (economic development) or other strategies?		**Entrepreneurial SD Activities** • What SD-related entrepreneurial activities are we already undertaking in our core areas (education, research, outreach & partnering, entrepreneurial activities, campus operations, governance)? • How do these activities contribute to meeting regional challenges or potentials? • What positive/negative, intended/unintended impacts can our actions have on your community? • How can our actions go beyond our region and positively affect a global level?			• How can your actions go beyond your region and positively affect a global scale

	STEP 1 Mapping Regional Challenges/Potentials	STEP 2 Linking Challenges/ Potentials to Targets	STEP 3 Elaborating a Shared Vision	STEP 4 Mapping your HEIs SD Activities	STEP 5 Mapping Governance & Skills	STEP 6 Alignment	STEP 7 Gap-Analysis
	• Do sustainable 'cross-innovations' exist in our region, i.e., new solutions that cross the boundaries of single sectors and [or] knowledge domains (e.g., Bitcoin as crypto-currency)? • What are the barriers/challenges of knowledge and innovation diffusion?						
NOTE(S)	Instead of aspiring to map all **challenges** you should focus on the most pressing challenges that call for immediate action to drive future sustainable development. We understand **sustainability-oriented start-ups** as entrepreneurs emphasising generating social value over economic value and those that generate social or environmental benefits regardless of their economic objectives. One can	We suggest initiating knowledge exchange formats with key actors from the regional ecosystems, fostering transdisciplinary collaborations to achieve long-term effects.	Clear goals and a vision (the 'what') are more important than exact measures (the 'how'). Due to the procedure, the vision will have a strong Third Mission focus.		Although climate change is a global challenge, regional efforts can make the SDGs more feasible. The combination of sustainability and regional development can facilitate sustainable ecosystems.	The process of getting there is more important than the visualisation itself, as it entails thoughtful reflection on the insights gained. Nevertheless, visualisations facilitate internal and external communication.	The Gap Analysis is no means to its end but an instrument to identify areas of improvement. Forasmuch, it should cover all core functions of your HEI while accounting for the regional context. In doing so, the focus is not on identifying every gap but pinpointing those your organisation

 **STEP 1** Mapping Regional Challenges/Potentials	 **STEP 2** Linking Challenges/ Potentials to Targets	 **STEP 3** Elaborating a Shared Vision	 **STEP 4** Mapping your HEIs SD Activities	 **STEP 5** Mapping Governance & Skills	 **STEP 6** Alignment	 **STEP 7** Gap-Analysis
also explore additional entrepreneurial potential, which may arise, for instance, from enhanced technologies used in other products.						can meaningfully contribute to narrowing.

3.1 Contextual Frame – Regional Potentials

While climate change-related challenges affect regions worldwide, and SD is approached as a global endeavour, it is important to acknowledge that the specific challenges and initiatives can vary significantly from one region to another. Hence, HEIs are increasingly encouraged to engage in mapping exercises to better understand the distinct regional challenges. To do so, you and your HEI are advised to examine national and local sustainability strategies in policy and businesses and initiate discussions with regional stakeholders, including companies, residents, town officials, and politicians. You should also employ scenario planning to construct sustainable futures, analyse trends and societal climate, and establish meaningful indicators across the four dimensions of sustainability: economic, ecological, social, and cultural.

Mapping Regional Challenges

—» What SDGs and efforts are described in our national and local strategies?

—» Do incentive systems driving SD exist in our region? If so, what do they look like?

—» What challenges does our region face today and in future (next 20 years)?

—» Are regional stakeholders aware of the regional challenges and intend to act to overcome these (problem ownership)?

—» Are these discussed among or supported by the regional stakeholders?

—» Which targets help to minimise risks and challenges in our region?

—» What capacities do we need to develop to achieve our institutional vision?

—» How is the societal climate towards SD?

—» What resources are considered valuable in our region?

Note

Instead of aspiring to map all challenges you should focus on the most pressing challenges that call for immediate action to drive future sustainable development.

Step 1a.
Mapping Regional Challenges

The following table will help you to identify the most important regional challenges, assign dimensions and link them to relevant SDG targets (Step 2).

Regional Challenges	Social	Economic	Ecological	Cultural	SDG targets addressed	Possible activities
Resource Management						
Example: Insufficient social cohesion	+++	+	+	+	SDG target 16.1 (Reduce Violence Everywhere); Target 5.4 (Value Unpaid Care and Promote Shared Domestic Responsibility)	
Resource-intensive industries	+/-	+++	+++	+	SDG target 8.4 (Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation)	

Table 21.
Checklist "Regional Challenges"

An alternative procedure would be to start with a mapping of the **economic potential** within a respective region. Factors such as division of labour, gains from trade, innovation and regional specialization are widely recognised as important for economic development (Cripps et al., 2009). Transdisciplinary collaborations enable spillovers and localised learning. By answering the following questions, HEIs may analyse the economic potential in their region concerning SD.

Mapping Regional Entrepreneurial Potential

—» How is our regional ecosystem organised (production/consumption, value chains, employment patterns)?

—» Are there successful sustainability-oriented spin-offs/start-ups (including not-for-profit ones) in our region? And if so, how many?

—» Is our region specialised in a sector or field?

Step 1b.
Mapping Regional Entrepreneurial Potential

—» Do sustainable 'cross-innovations' exist in our region, i.e., new solutions that cross the boundaries of single sectors and [or] knowledge domains (e.g., Bitcoin as cryptocurrency)?

—» What are the barriers/challenges of knowledge and innovation diffusion?

Note

We understand sustainability-oriented start-ups as entrepreneurs emphasising generating social value over economic value and those that generate social or environmental benefits regardless of their economic objectives. Furthermore, one can also explore additional entrepreneurial potential, which may arise, for instance, from enhanced technologies used in other products.

In the second step, you should establish connections between the identified regional challenges or economic potentials and specific SDG targets. The following questions will help you to select suitable targets.

Step 2.
Linking Challenges/Entrepreneurial Potential to SDG Targets

Linking Regional Challenges to SDG Targets

—» Which SDGs are pivotal in addressing the challenges encountered in our region?

—» Which SDG targets can contribute to addressing the identified challenges within the dimensions of sustainability and, ideally, bolster the region's resilience?

Linking Regional Entrepreneurial Potential to SDG Targets

—» What SDG targets a pivotal in strengthening our region's economic potential in due consideration of social and ecological aspects?

—» Do spin-offs and start-ups consider or aim to align with specific SDGs? If yes, which ones do they target?

—» Are any SDG targets mentioned in regional/national (economic development) or other strategies?

Note

We suggest initiating knowledge exchange formats with key actors from the regional ecosystems, fostering transdisciplinary collaborations to achieve long-term effects.

3.2 Organisational Frame – Analysis of Baseline

After mapping regional challenges and potentials and linking them to specific SDG targets, your HEI can invite internal stakeholders to discuss a shared vision and integrate the findings into their strategic plans.

Elaborating a Shared Vision

—» How is SD understood in our region?

—» Which SDGs are important in our region to drive SD?

—» What is it that should be sustained?

—» Who are the supporters and opponents to engage?

Step 3.
Elaborating a Shared Vision

Note

Clear goals and a vision (the 'what') are more important than exact measures (the 'how'). Due to the procedure, the vision will have a strong Third Mission focus.

In the next step, you have to chart the SD activities your HEI is already undertaking in its core areas, encompassing education, research, outreach & partnering, entrepreneurial activities, campus operations and governance. You should then establish connections between these activities and the identified regional challenges. Should your HEI's SD activities fail to contribute effectively to regional SD, HEIs are urged to modify them or consider launching new initiatives to address critical targets.

The following questions can be used as a guideline:

Mapping SD Activities in Your Organisation

—» What SD-related activities are we already undertaking in your core areas (education, research, outreach & partnering, entrepreneurial activities, campus operations, governance)?

Step 4a.
Mapping SD Activities

—» How do these activities contribute to meeting regional challenges?

—» What positive/negative, intended/unintended impacts can your actions have on our community?

—» How can our actions surpass our region and positively affect the global level (e.g., knowledge transfer)?

HEIs engage in manifold entrepreneurial activities, especially those with a strong technical, business or application orientation. The activities can be located at different levels: (1) the individual level as, for example, shown in the entrepreneurial orientation of single educators or researchers, (2) the level of the core functions, e.g. entrepreneurial support as part of the third mission, entrepreneurial education programmes, and (3) institution-wide input and output, e.g., innovations. If you choose a potential-oriented approach to SD for your HEI, the following questions can be used to map entrepreneurial activities. In the next step (Step 5), the activities will be matched with skills and (Step 6) their contribution to SD.

Mapping Entrepreneurial SD Activities

—» What SD-related entrepreneurial activities are we already undertaking in our core areas (education, research, outreach & partnering, entrepreneurial activities, campus operations, governance)?

—» How do these activities contribute to meeting regional challenges or potentials?

—» What positive/negative, intended/unintended impacts can our actions have on your community?

—» How can our actions go beyond our region and positively affect a global level?

Step 4b.
Mapping Entrepreneurial SD Activities

To get an overview of the SD activities and entrepreneurial activities in each core area and their contribution to SD, the checklists provided in **Table 15**, **Table 16**, **Table 17**, **Table 18**, **Table 19** and **Table 20** can assist you.

3.3 Capacity Frame – Mapping of Governance & Skills

Concerning the capacity frame, you can follow the procedure outlined in Part II, section 2.2 to map established governance structures, modes of governing and skills, respectively, capacities (Step 5).

The same applies to aligning and visualising key findings (Step 6) and conducting the 'Gap Analysis' (Step 7).

4 Good Practice Examples

Case studies are the most frequently used research method as regards SD at HEIs. Most case studies are descriptive and good practice examples or success stories (Corcoran et al. 2004: 7).

However, these types of case studies risk masking problems experienced by institutions, such as power struggles and ideological differences, although conflict is part of every change process, especially at the necessary level of changing cultural values and beliefs. Many practices are experimental and need constant review and re-engineering. For that reason, case studies also need to consider challenges and constraints.

Due to the cultural dimension of SD and regional specifics, there are no universally applicable pathways for the development, implementation, and evaluation of sustainability. The following **five deep research case studies** highlight where and how the SDGs are currently championed in European HEI settings. As **transformative case studies, they should anticipate developments and consider transferability.**

The consortium decided to illustrate good practice examples for the following reasons:

Examples of Good Practices help to …

- follow a transformative narrative, shifting away from dystopian future outlooks.
- pay tribute to the variety of already successfully implemented efforts.
- inspire other HEIs and provide ideas for whole-institution activities.
- identify gaps between existing standard practices and actual needs.

Though providing valuable insights into what implementing SD approaches actually means in practice and lessons learned, one needs to be aware that the examples presented below are context-specific and might require adaption to your HEI's context.

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