SDS 4HEI

HIGHER EDUCATION MISSION FOR SUSTAINABILITY

Taking Responsibility

HEIs' Role in Thriving Sustainable Futures

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WP 2 – Framework for SD at HEIs

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Reader's Guide

You hold a leadership position in a Higher Education Institution (HEI), work as a sustainability officer, teacher, or researcher, or have an interest in sustainability at your organisation? Prepare to embark on an inspiring journey that underscores the pivotal role of HEIs in crafting sustainable futures.

What to expect?

This guidebook envisages to assist you in unleashing the full potential of your organisation in driving sustainability. To do so, it introduces the SDS4HEI Framework as a basis for strategically anchoring sustainable development (SD) in your HEI, complemented by a step-by-step process model to take immediate action leading to long-term impact. Get ready to dive in and discover the transformative power of your organisation in building a brighter, more sustainable world.

Part I unveils the realm of sustainability in HEIs, our ambitions and the role we can play in shaping sustainable futures. **Part II** dives into the SDS4HEI Framework, revealing its transformative power as an integrated model that breathes life into SD within HEIs. In **Part III**, we unlock a dynamic 7-step process model, guiding you on an exhilarating journey to implement SD within your organisation strategically.

How to use the handbook

This guidebook is designed to be as flexible and user-friendly as possible. You do not need to read it cover to cover. Instead, you can jump into the sections that align with your prior knowledge, specific areas of interest, or immediate needs.

Whether you are an expert in SD seeking specific tools (-» Part III), a newcomer to the field looking for an introductory overview (-» Part I), or someone with a targeted interest in real-life examples (-» Good Practice Examples), you can tailor your reading experience to match your objectives.

Feel free to explore the sections that resonate with you the most. Each part is designed to stand alone and provide valuable insights and practical information. We have structured the content to allow you to easily navigate to the parts most relevant to your unique situation and interests. Our goal is to make the great and abstract endeavour of sustainable development at HEIs more accessible through low-threshold entrance points and clear benefits.

To assist you in your endeavours, the guidebook provides checklists, guiding questions, tools, measures and takeaways indicated by the following symbols.

This guidebook is your resource, and we encourage you to use it to serve your goals best. We are here to support you on your journey towards implementing SD strategies in your organisation, and we hope this flexible approach enhances your experience with this handbook.

Happy reading, and best of luck with your SD endeavours!

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Glossary of Terms

2030 Agenda of Sustainable Development	Adopted in 2005 by the members of the United Nations, the agenda is a globally shared plan of action for people, planet, and prosperity.
Agenda 21	The precursor of the 2030 Agenda. A joint program introduced by the United Nations in 1992 for implementing and measuring sustainable development.
Capacity	The intention as well as the potential to accomplish a task or achieve a particular outcome.
Change Agent	An actor from inside or outside a system, e.g., an organization, who helps to transform how the system operates.
Context	The interrelated conditions in which something exists or occurs. There are different contexts, for example, institutional, political, socio-historical, cultural context, etc.
Core functions	Higher education institutions' core functions or main implementation areas for SD are education, research, entrepreneurial activities, outreach and partnering, campus operations and governance.
Ecosystem	An ecosystem is a complex, interconnected network in an institution or region consisting of people/organisations, interactions, processes, among other things.
Employability	Possessing skills necessary to gain and maintain employment.
ESD	Education for Sustainable Development. ESD gives learners of all ages the knowledge, skills, values and agency to address interconnected global challenges.
EU	European Union
Factor (f)	An element that contributes to/influences a result. Factors are part of the contextual frame, giving the context its distinct shape.
Frame	A basic structure that supports a system/concept and comprises some constituent elements.
Framework	A supporting structure around which something can be built. A system of rules, ideas, or beliefs used to plan or decide something.
HEI	Higher education institution. The term refers to an institution at the tertiary level that, in accordance with national law or practice, offers recognised degrees or other recognised qualifications. The term encompasses a variety of different types of higher education institutions.
Hidden Curriculum	Describes values and practices incorporated by the campus design that internal stakeholders adopt through informal learning.
Impact	In evaluation and monitoring, impact refers to attributable long-term effects or observable changes resulting from an intervention or activities that can be positive or negative, direct or indirect, intended or unintended.

Indicator	A numerical/qualitative measure that offers data/information for overseeing performance, gauging accomplishments, and establishing responsibility.
Organisational Learning	Process by which an organisation improves itself over time through creating, retaining and transferring knowledge and gaining experience.
Power	Ability of actors to deploy their agency in ways that affect the beliefs or actions of others.
RRI	Responsible Research and Innovation aims to align the direction and impact of research and innovation with societal values and needs to the greatest extent possible.
SD	Sustainable Development
SDGs	Sustainable Development Goals: a set of 17 goals established by the United Nations as part of the 2030 Agenda for Sustainable Development. The SDGs are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by the end of 2030.
Stakeholder	Agencies, institutions, groups or individuals that have a direct or indirect stake or commitment in the project design, implementation, benefits, or evaluation.
Sustainability	Sustainability represents an intergenerational ethical approach where the environmental, social, and economic choices made by today's individuals aim to ensure that the opportunities for future generations to experience comparable levels of wealth, utility, or welfare are not compromised.
Sustainability dimensions	Following a holistic approach, sustainability encompasses interconnected economic, ecological, social, and cultural dimensions that must be equally considered.
Targets	Set of 169 targets of the 17 SDGs
UN	United Nations
UNESCO	The United Nations Educational, Scientific and Cultural Organization. The UN's leading agency for ESD. They focus on building peace through international cooperation in education, the sciences and culture.
Variable (V)	Elements that are liable to vary or change
Whole-institution approach	Strategically orienting all impact areas of HEIs towards SD.

Part I

// Exploring the World of Sustainable Development

HEIs worldwide are embarking on an exciting journey towards a sustainable future. In a 2022 global survey, 38% of HEIs have adopted strategic plans for sustainable development (SD), and an additional 40% are actively developing them. Global conflicts, the COVID-19 pandemic, and environmental challenges have shifted the focus from 'whether' to 'how' HEIs can implement practical measures within their core functions.

Our organisations play a vital role in regional, societal, and global development. We can support the European Union's Green Recovery and address social equality, economic development, and climate change challenges. We are key players in advancing the Sustainable Development Goals (SDGs) and the United Nations' collective framework for peace and prosperity.

At the midpoint of the 2030 Agenda, a UN report highlights a slowdown in SDG progress. Our organisations must adopt a 'whole-institution' approach, emphasising a holistic perspective, transformative readiness, and individual empowerment. We must rethink our roles, promote transformative learning, address human capital needs, engage globally, and embrace diversity. This approach spans research, teaching, outreach, campus operations, entrepreneurial activities and fostering a 'culture of sustainability'.

We encourage you to challenge conventions and support the integration of the SDGs into institutional values, visions, missions, and campus practices. The following sections assist you in gaining a deeper understanding of what SD actually means for HEIs.

1 The Many Trajectories Towards Sustainability

> Universities are increasingly compelled to strengthen their endeavours in supporting the attainment of sustainable development goals and make significant contributions to sustainable development.

Higher Education Institutions (HEIs) worldwide have begun to embark on the journey towards a more sustainable future. In a worldwide survey from 2022, 38 per cent of HEIs claim to have adopted a strategic plan for SD, while another 40 per cent are working on one (Toman et al., 2023: 44). Multiple crises such as global wars, the Covid-19 pandemic, and environmental challenges, have heightened the need for new skills, professions, and meaningful innovations. The question no longer is whether HEIs engage in SD but rather **'how' practical measures can be implemented in HEIs' core functions to achieve long-term impacts.** Which pathways lead to the successful 'whole-institution' implementation of SD at a specific HEI? What strategies are capable of linking regional development with HEIs' sustainability endeavours? Which immediate and concrete actions lead to long-term change? How can the diverse stakeholders of HEIs be motivated to participate in the process?

While most HEIs do not lack the motivation to start developing SD strategies, the alignment with the SDGs, regional development, long-term implementation, advancements in the 'sustainability culture' and monitoring of success prove to be prevailing needs.

From a human-centred perspective, SDS4HEI recognises the crucial role HEIs play in regional and societal development and the global transformation necessary to secure the quality of life for present and future generations. HEIs can support the European Union (EU) on its journey to Green Recovery, restoring European prosperity while tackling the urgent and interconnected challenges of social equality, economic development, and climate change. HEIs are influential multipliers in advancing the 17 Sustainable Development Goals (SDGs) and their 169 targets. Being at the heart of the United Nations (UN) collective framework for promoting peace, prosperity and balance, the SDG targets are identified as a valuable guide for HEIs.

The SDS4HEI framework assists HEIs across Europe in determining how to implement SD into their existing strategies, contribute to SDG-related challenges through their

core teaching, research, and engagement functions, and meaningfully connect their efforts to their respective regional, political, and cultural context.

Strategic Focus

We assist you by illustrating how to strategically approach the implementation of SDGs at your institution to support quality of life in your region and beyond.

Meaningful Actions

We support you by exemplifying how and where to spot areas for implementing immediate actions that promote the SDGs and lead to long-term SD.

Transdisciplinarity at the Core

We explicate methods assisting you in fostering transdisciplinary collaborations to explore synergies between your curricula, industry and societal/environmental challenges.

The framework, developed under Work Package 2 of the SDS4HEI project, is informed by a literature review conducted from January to June 2023. This review served as a needs analysis and was followed by an online survey on institutional vision, mission, values statements, and strategic plans. Four focus group discussions on organisational culture at HEIs were conducted to gather insights on staff motivation and barriers to engagement in sustainable development. The framework also incorporates good practice examples across Europe, highlighting current initiatives championing sustainable development.

2 Sustainable Development in HEIs

To what extent are the SDGs a suitable framework for HEIs?
What are HEIs core functions?
What distinguishes HEIs from other actors?
How has the role of HEIs changed?

At the midpoint of the 2030 Agenda, the UN's Sustainable Development Report 2023 shows a slowdown of worldwide efforts in achieving the SDGs, all of which are off track (Sachs et al., 2023). Seven years remain to adopt new values and beliefs, implement strategies, and govern change processes towards a more sustainable future to secure a good quality of life for future generations. HEIs are considered key players in this process. To assist them in reaching their sustainable goals, it is crucial to embrace long-term SD routes characterised by tangible and immediate steps while adhering to a comprehensive 'whole-institution' and 'all-dimensions' approach.

2.1 Our Ambitions — What we Strive for!

What is SDS4HEI's understanding of SD?
What are SDS4HEI's objectives?

SD, as the effective use of resources, dates back to the 18th century and has roots in forestry (Wiersum, 1995). Though various definitions of SD exist, the most cited definition originates from the one provided in the so-called Brundtland Report 'Our Common Future' published in 1987 (UN, 1987).

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The 17 SDGs, agreed upon by the United Nations, serve as an internationally shared guideline to support the implementation of SD strategies. The SDGs guide global

actions that help understand the climate crisis's interdisciplinary and cross-cutting nature. While the 17 global goals and their 169 sub-targets provide a general direction for SD, referring to the 'five Ps': People (SDGs 1-5), Planet (SDG 13-15), Prosperity (SDGs 6-12), Peace (SDG 16), and Partnerships (SDG 17) – the terms run the risk of remaining too abstract, overwhelming, imprecise and potentially reduced to being perceived as mere buzzwords.

SDS4HEI framework links regional needs/challenges and institutional visions to concrete activities for SD, making impact more feasible and visible.

Following an **all-dimensions approach,** the three pillars of (1) economic development, (2) social development, and (3) environmental protection constitute the basis, where SD is understood as the many efforts to establish harmony between these mutually reinforcing dimensions and thus reach sustainability. In addition, the SDS4HEI framework acknowledges 'Culture' as a transversal dimension, influencing our perception, values, beliefs and motivation to take action. The integration of the cultural dimension also assists in ensuring SD is not limited to being a scientific concept; rather, it is viewed as a guiding principle embedded in the moral compass of people, directly linking environmental and economic issues to cultural and social considerations.

The framework will assist HEIs with strategically implementing measures that will lead to the **best quality of life for people** in a specific regional context and worldwide through immediate actions. First, the human is at the centre of our reflections. Efforts towards sustainability will become less abstract and more rooted in people's lived experiences. Second, we will communicate the positive effects of HEIs, providing incentives for stakeholders to engage, for example, by showing that SD leads to more resilience against unexpected events.

Our approach to SD is **holistic and transformative.** While sustainability is result-oriented and "thought of as a long-term goal", SD is path-oriented and "refers to the many processes and pathways to achieve" a goal (Jeronen, 2013: 2371). SD is understood as an ongoing, open, and reflexive process. It describes "complex transformational processes" (Netzwerk Nachhaltigkeit und Hochschule Bayern, 2019: 2), with sustainability being a moving target, "a system state that our society is constantly trying to define and reach" (Kioupi & Voulvoulis, 2019: 2).

Following a **whole-institution approach,** we recognised HEIs' capacity to transform our relationship to sustainability's environmental, economic and social dimensions through their core functions: education, research, third mission and operations. It requires a systemic change through new forms of governance and new working, teaching and learning methods based on the established infrastructure. Hence, SDS4HEI

adopts a human-centred 'all-dimensions' vision of SD at HEIs following a whole-institution approach, as apparent in our understanding of SD.

> Sustainable Development for us means creating concrete and successful steps towards the best quality of life for everyone, both where we live and in the wider world.

Our understanding of SD consists of the following key components:

Holistic Perspective

Following a whole-institution approach requires a systemic change through new forms of governance, working, teaching, and learning methods.

Transformation Readiness

SD is a long-term and open process. We focus on the benefits of SD, building on practical and immediate actions to reach long-term transformative goals.

Harmony as a Goal

We strive for harmony between present, future, and regional needs and sustainability's economic, social, and ecological dimensions (all-dimensions approach). Culture is understood as a transversal dimension, influencing people's motivation to act.

Human at the Centre

Our understanding of SD is human-centred, striving for the best quality of life for everyone. Our actions are rooted in the lives of individuals. We will equip people with knowledge, skills, attitudes, and values to become responsible and active citizens to create a sustainable future.

The following elements have been identified as critical requirements to implement SD at HEIs successfully:

Rethinking Roles

HEIs must be encouraged to rethink their role, especially concerning transformative processes within and outside the institution and their social responsibility.

Transformative Learning

Change relies on developing and adopting new habits, cross-cutting skills and mindsets that help preserve a good quality of life. Transformative learning activities like transdisciplinary collaborations, action-based learning, and multi-actor involvement will create responsible citizens.

Addressing Human Capital Needs

All higher education stakeholders must have the necessary sustainable skills and knowledge to make a positive change and create visible and measurable outcomes in their institutions and communities.

Collaborations across the Globe

Collaborative efforts are the cornerstone for change towards SD. HEIs must strengthen European and international relationships with other HEIs and enable transdisciplinary collaborations.

Valuing Diversity

HEIs, committed to a sustainable future, should draw on and value diverse stakeholders and their interests to improve the community's social, cultural, environmental and economic well-being.

Whole-Institution Approach

HEIs can support today and prepare tomorrow's leaders to contribute to society's transformation significantly. To do so requires adopting a 'whole-institution approach'.

2.2 Taking Responsibility — What is HEIs' Role?

> In response to calls from society as a whole, HEIs could combine transfer and sustainable development more systematically.
>
> Nölting et al. (2020: 1)

Rebuilding European prosperity and securing the quality of life of present and future generations are inevitably linked to the ability of present societies to think, act, and evolve sustainably. SDG 4 (Quality Education) shows that education is understood as the basis for creating a 'culture of sustainability'. With target 4.7 (Education for Sustainability), all learners should acquire the knowledge and skills necessary to promote SD until 2030. That includes education, fostering sustainable lifestyles, promoting human rights and gender equality, cultivating a culture of peace and non-violence, encouraging global citizenship, and appreciating cultural diversity and its contribution to SD.

HEIs are considered a vital actor when it comes to SD for multiple reasons. First, HEIs possess a unique structure and societal power to enable different kinds of innovations, whether social, technological, or cultural and educate future leaders. Although there are various types of HEIs, depending on their specific region and tradition, each determined by different characteristics, some elements remain constituent (i.e. the six core functions). Second, HEIs bring together diverse stakeholders from various academic disciplines, non-academic staff, students, and external partners, such as urban partners and companies. Their core missions or functions include producing and transferring (scientific) knowledge and creating a new generation of future leaders and professionals. Third, HEIs significantly impact regional development and fulfil a social and cultural function by enabling innovation, finding research-based solutions, transferring knowledge and technology into practice, and teaching new practices. Due to their manifold stakeholders and core functions, HEI must, more than other organisations, strive to implement SD as a cross-cutting principle.

The role of HEIs regarding SD is determined by their core missions and connections to power and being themselves agents of power. Depending on the respective strategy an HEI chooses to adopt, the responsibilities might vary in importance.

What is the role of HEIs?

Influential Multiplier

HEIs can manage SD-related discourses and orchestrate stakeholders' distinct motivations and (conflicting) interests. They can identify and communicate opportunities for participation and action. They can 'lead by example' by acting as role models by adopting sustainable campus practices.

SD Contributor through Function

By integrating sustainability as a cross-cutting issue in their core functions, HEIs contribute actively to sustainable futures. That is, through education, they open up new perspectives for young people (e.g. new professions). Research on and with SD heightens awareness of the interconnectedness of sustainability facets and can lead to improved solutions. Outreach and partnering contribute to awareness building and integrating 'new' stakeholders.

Change Maker by SD Culture

By embracing a sustainability-focused culture and implementing incentives for stakeholders, HEIs can expand the reach of their SD initiatives. That not only aids in raising awareness but also inspires others to become actively involved.

A growing number of institutions worldwide already report on their SD activities, focusing on SDG 4 (Quality Education), SDG 13 (Climate Action) and SDG 17 (Partnerships for the Goals; see SDG Accord Report, 2022). Although considered a suitable framework for targeting SD, many HEIs have **difficulties turning individual motivation into concrete, strategic actions with long-term effects.** HEIs should build upon pre-existing strategic plans and visions, considering their respective regional and cultural context and strengthening knowledge transfer. The framework will assist HEIs to find context-specific goals, measures and indicators, focusing on civic engagement and entrepreneurial learning. It will enable the effective diffusion of newly acquired knowledge and skills in the field of SD into the regional ecosystem for the benefit of all.

TAKEAWAYS

HEIs are characterised by …

- a network of different stakeholders.
- core missions, including knowledge production, transfer and finding research-based solutions and sustainable practices.
- the necessity to implement SD as a cross-cutting principle to facilitate transformative change.
- connections to power holders and being agents of power influencing and shaping context through their actions.

Learnings:
What to take with you?

2.3 A Whole-Institution Approach — Everyone has a Role

A holistic and transformational approach to SD within a HEI requires systemic change and embraces new working methods based on the established infrastructure.

Global initiatives, such as UNESCO's Education for Sustainable Development (ESD), have recently increased the number of sustainability-related courses, programmes and extra-curricular activities within European HEIs. Effective implementation of SD, however, must extend beyond educational offerings. It is not only a matter of classroom teaching but also encompasses operational responsibilities, such as reducing carbon footprints, managing campuses sustainably, and positively impacting the communities we serve. An effective whole-institution approach integrates SD in all HEIs' core functions, encompassing research, teaching, outreach, campus operations and a 'culture of sustainability', governance, stakeholder engagement, long-term orientation, and monitoring and evaluation. Different strategies can be used to initiate a whole-institution transformative process (Giesenbauer & Müller-Christ, 2020):

- An institution-wide process is promoted and organised by progressively focusing on co-creative collaboration with various stakeholders (leadership, educators, students, and administration). A vision of sustainability is elaborated collaboratively.
- Technical and financial resources are provided to the institution to support its reorientation.

- Transformation through participation in inter-institutional networks to share inspirational best practices, enable peer-to-peer learning and discuss new trends and challenges.

The idea of SD at HEIs is still to be treated as an innovation, and transformation at the institutional level is more complex than on an individual level. Even though diverse strategies, frameworks, tools, research projects, and alliances exist to assist HEIs on their journey, 'trial-and-error' is still the modus operandi. HEIs can become more skilful during the change process by adopting an additional' learning organisation' approach.

HEIs are a social system in which all members are encouraged to challenge existing worldviews, values and behaviours. A 'whole institution' approach can assist in pinpointing and highlighting advancements in impact domains and identifying pertinent stakeholder groups. It involves educating managers, academic, research, and teaching staff, administrative personnel, campus facility teams, student engagement officers, and student unions about the SDGs and their respective roles in promoting them within their HEI.

SDS4HEI aims to embed the SDGs as a core component in HEI institutional visions, missions, value statements, strategic plans, organisational culture, research, teaching, and campus practices while also encouraging the design of sustainability into the fabric of educational fields, focusing on entrepreneurship but also in STEM and the arts. In line with mission-oriented and transformative research and innovation policies (Mazzucato, 2018; Haddad et al., 2022; Parks, 2022; Wanzenböck et al., 2020), this applies especially to HEI's third mission of generating societal value.

Tools with a 'Whole-Institution' Approach

- The Sustainability Code for HEIs (https://www.deutscher-nachhaltigkeitskodex.de/en-gb/)

Tool 1.
Sustainability Code

Part II

// Unlocking Sustainable Development's Potential

The SDS4HEI Framework is an integrated model that aims to guide you in your organisation's transformative journey towards sustainable development. It is composed of three interrelated frames mutually reinforcing each other.

The organisational frame adopts an internal perspective, inviting you to explore your Higher Education Institution (HEI) through the dynamic lens of sustainability development (SD). A shared vision, anchoring SD in your organisation's core functions, encompassing education, research, outreach, entrepreneurial activities, on-campus operations, and governance is a vital element.

Closely intertwined, the capacity frame outlines six key capabilities related to governing, measuring progress, promoting equity, adaptability, transformative and transfer capacity, which are essential for implementing sustainability initiatives effectively.

Next to internal aspects, external contextual factors that influence your actions are important. Hence, the contextual frame delves into the broader environment in which your HEI operates. It examines societal and cultural factors, institutional aspects, economic considerations, and political influences that play a role in the pursuit of sustainability.

Utilising this framework can assist you in strategically enhancing your organisation's commitment to sustainable practices, adapting to changing circumstances, and positively contributing to SDGs.

1 What the SDS4HEI Framework is about

For HEIs envisioning a whole-institution approach, sustainability must become a guiding principle in all fields of action.

The SDS4HEI framework model provides a generalised supporting structure for HEIs to **find and implement strategic paths for SD.** It allows for a more straightforward presentation of interrelations and connectivity, shows progress in impact areas, identifies gaps and relevant stakeholders, and facilitates the implementation of (new) measures. While strategic plans, vision and mission are subjective to a particular HEI, the framework, as a guiding instrument, is abstract enough to **ensure transferability.** It is also **interactive,** with tools and building blocks so HEIs can develop specific implementation strategies while engaging with the framework. The model consists of three different frames – (1) the organisational frame, (2) the capacity frame and (3) the contextual frame (see **Figure 1**). Each frame contains elements, referred to as measures, variables and factors, further defining it and interacting with one another, enabling the creation of meaningful relationships across the different frames.

The **organisational frame** (-» 2) takes an inside perspective and comprises elements such as your vision, organisational culture and structure, your core functions (-» 2.3) and governance. The **capacity frame** (-» 3) emphasises the capabilities allowing you to successfully implement SD in your HEI. From an outside perspective, the contextual frame focuses on the framework conditions, including the societal/cultural, institutional, political and economic frames, in the region where your HEI is embedded (-» 4).

What makes the SDS4HEI framework special is that it takes the different types of HEIs and their respective structure into account and their regional context. While the organisational structure determines the power relations that influence SD, the organisational culture is the basis for actors' (de)motivation to engage in certain activities. Dividing the **SDGs** into their **specific targets** makes SD more feasible and measurable.

The framework model allows you to connect your organisation's vision of a sustainable future, expressed in the particular targets you choose to reach, with concrete steps and the regional context, acknowledging HEIs' responsibility for regional and social development.

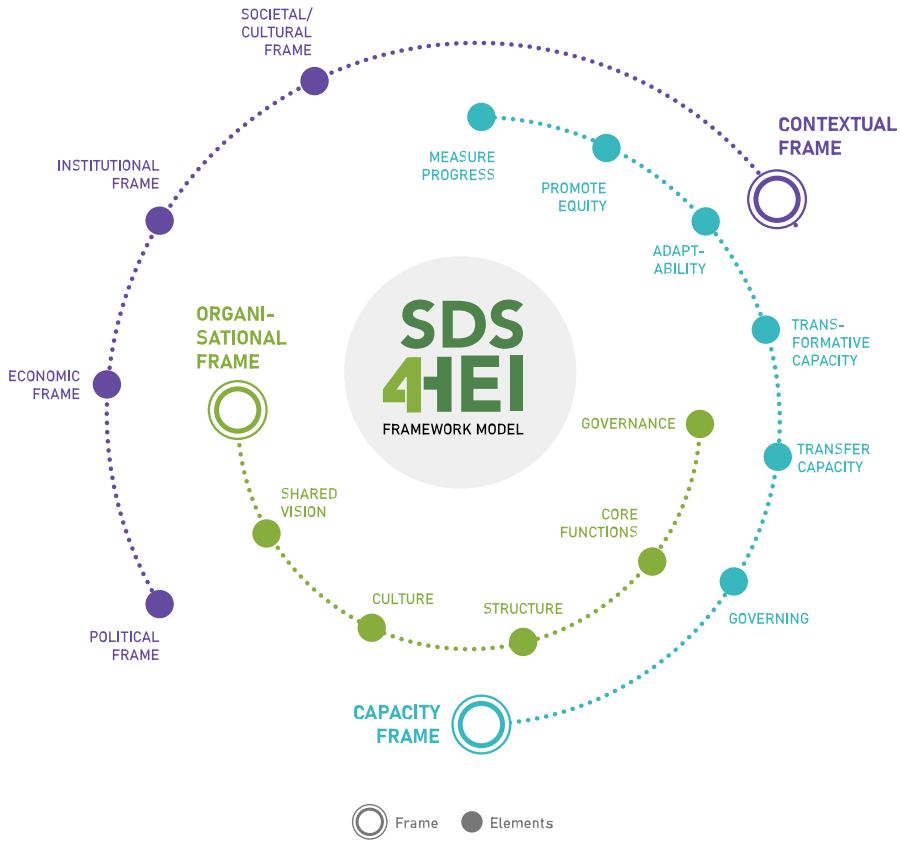


Figure 1.
SDS4HEI
Framework Model

2 Organisational Frame

What is part of the 'Organisational Frame'?
How do 'Structure & Culture' relate to SD?
How do HEIs' core missions relate to SD?
What are possible 'Measures' (M) to implement SD strategically in the respective core areas?

Following the whole-institution approach, the innermost frame of the SDS4HEI model, the 'Organisational Frame', looks at the constituent parts of HEIs. The frame concentrates on HEIs' structures, including the type of HEI, its governance structures, core functions and the culture shared by its various stakeholders (academic and non-academic staff, students and leadership).

2.1 United Under a Shared Vision

Following an 'all dimensions' approach, the transversal cultural dimension determines how SD is understood in a specific context and influences the motivation to take action.

'Culture' and 'Structure' are interconnected and are the main pillars enabling long-term behavioural change. Diverse backgrounds, including community, culture, academic discipline, and a wide range of interests, values and beliefs, characterise internal and external stakeholders of HEIs. HEIs must collectively embrace a shared understanding and unified sustainability vision to implement SD successfully. They must clarify 'for whom' and 'why' SD should be pursued before taking concrete actions. A clear and specific idea is essential before setting goals (Findler et al., 2019).

While culture encompasses the unwritten rules, rituals, stories, shared beliefs and values within HEIs, the **organisational structure gives culture its concrete, legal form and ascribes power to people and institutions.** Governance structures determine power relations, who can participate in what kind of processes, and whose interests are represented. They distribute rights, responsibilities, authority and accountability among different stakeholders. It further defines decision-making rules and proce-

dures. Interwoven with all the other frames and their elements, 'governance' has an overarching function and must be viewed as a particular element within the organisational frame.

The respective type of HEI and its structure determine the configuration of its core functions: (1) to provide new knowledge through research, (2) to impart knowledge and skills to students through education, (3) to organise operations and life on-campus, and (4) to enable the diffusion of knowledge and innovation into society and economy. Structure and culture influence each other and shape the relationships between a HEI's social actors.

HEIs have evolved, gradually taking on more social responsibility and opening towards new stakeholders and co-creation processes. Research indicates four different historical phases, beginning with the traditional HEI, then a modern, a postmodern and finally an **integrative HEI** (Giesenbauer & Müller-Christ, 2020; DG HochN, 2021). The evolution is characterised by a transformation from 'an educational establishment' to a focus on the knowledge-creating (research) function, and in recent years shifted towards active engagement through the so-called **'Third Mission'** (Giesenbauer & Müller-Christ, 2020).

The organisational frame – the culture and structure of a HEI – is shaped by the **contextual frame.** Different countries possess different institutional forms, regional conditions and binding laws. While some HEIs might decide to emphasise research efforts to develop solutions for regional SD-related challenges, some HEIs might stress their social responsibility through third-party mission activities. Regardless of the route taken, HEIs should strive to build upon pre-existing conditions, including strategic plans and regional and cultural contexts, and strengthen knowledge transfer.

2.2 Manifestations of Culture & Structure

'Culture' can be articulated in a HEI's vision and mission statements. A **'Vision' (why)** is a public statement describing an organisation's high-level goals for the future — what they hope to achieve and what they want to become if they successfully fulfil their organisational purpose or mission. A vision is aspirational and gives the organisation's efforts direction. These visions serve as guiding principles and long-term objectives that drive institutional policies, practices, and initiatives.

A HEI's vision for SD can play a transformative role in shaping the institution's culture, operations and impacts.

Ideally, a HEI's vision inspires and guides stakeholders, drives innovation and research, and promotes interdisciplinary education and research. Hence, it contributes to a more sustainable and resilient future.

A **'Mission' (what)** is a public statement describing the organisation's founding purpose, practical commitments and actions that an organisation believes are needed to achieve its vision — i.e. what it does and why it does it. It focuses on today and what an organisation does to achieve it. **HEIs' missions are vital in shaping their purpose, identity, and dedication to sustainability.** While the vision establishes long-term direction, the mission statement succinctly expresses the institution's core values, principles, and actions pertaining to SD. The interplay of institutional elements such as vision, mission, value statements, and governance structures of the institutional framework creates an environment conducive or not to the systematic integration of SD in HEIs (Gupta & Singhal, 2017).

'Value Statements' (how) describe the morals and values of an organisation and guide its actions. They illustrate how a HEI envisages achieving SD, how it plans to interact with the community and which aspects of sustainability will be prioritised.

HEIs benefit from finding points of connection between their already existing strategic plans, vision, mission, and value statements and their ideas for SD. **Strategic planning** in the context of SD involves identifying key priorities, assessing current and future challenges, and formulating strategies and initiatives that promote sustainable practices and outcomes. It typically includes conducting comprehensive assessments of environmental impacts, social factors, and economic viability to inform decision-making. The process should also actively involve internal stakeholders and ensure their participation and collaboration while shaping the strategic plans of the HEI. External stakeholders, such as community representatives, businesses, politicians, and non-governmental organisations, can also be included in later stages.

2.3 Overview of the Core Functions

HEIs core functions or missions comprise education, research, outreach & partnering start-up activities, campus operations and governance.

2.3.1 Education — Learning for a Sustainable Future

'Education' is one of the core functions of HEIs. SDG 4 (Quality Education) is the cornerstone for achieving a long-term, global transformation. Education for SD raises sustainability awareness and **equips learners with the knowledge, skills and values**

necessary to become responsible and active citizens and make informed decisions (Kioupi & Voulvoulis, 2019; UNESCO, 2023). In recent years, there has been an increase in sustainability-related courses, programmes and extracurricular learning activities in tertiary education across Europe.

'Education' relates to the other elements of the frame through, for example, different forms and modes of teaching. Students may gain practical knowledge through transdisciplinary collaborations with regional businesses. 'On-campus operations' can be viewed as a place for 'research' and 'education', allowing for (informal) learning. Students may experiment in project-based learning activities, working on new sustainable ideas and practices in a campus setting. The practices and values incorporated by campus design and operations also function as a 'Hidden Curriculum', conveying a certain 'sustainable mindset'.

By teaching students how to implement the SDGs in their future careers and wider lives, they will be equipped with the means to approach and **solve the most prevalent problems** of our time. Connecting the pedagogical content to the SDGs benefits the labour market and creates new professions. By combining entrepreneurial education and sustainable skills, education must ensure **employability related** to 'Entrepreneurial Activities' and 'Outreach & Partnering'. Combining entrepreneurial and sustainability skills will likely impact values, beliefs and orientations that guide future entrepreneurial actions (e.g. the desire to generate economic, social and environmental value). Entrepreneurial education is often lacking the **two-way integration approach.** Firstly, teaching students the Green Deal will influence their future entrepreneurial activities, even in the IT sector and remote working culture. Secondly, it will encourage young students to start businesses in the green economy or related sectors.

> Sustainability-oriented entrepreneurs are driven by the desire to create economic, social, and environmental value through their business activities.

In addition to students, SDS4HEI will provide other stakeholders with the essential knowledge required for introspection regarding their values and practices, enabling them to identify opportunities for adopting more sustainable behaviours. Through training and knowledge exchange, stakeholders can learn about the SDGs and their role in championing them at their HEI and beyond. It would also motivate educators and HEI management staff to engage in SD and influence the institution's governance over time. Citizen science promises to educate the wider public and initiate a **reflection process** on behaviour and values within a region.

Different 'Measures' help promote SD in education, including teaching new skills, curriculum development, training activities, practical experiments, on-campus learning, extracurricular activities, and certificates.

MEASURES

Measures in Education

- Curriculum development
- Combining entrepreneurial and sustainable skills
- Extracurricular activities
- Project-based on-campus learning
- Transdisciplinary collaborations with regional stakeholders (e.g., companies, regional development agencies, organised civil society)
- New (digital) teaching and learning methods (e.g., citizen science)
- Establishing incentives such as awards and certificates

Table 1.
Possible Measures in Education

2.3.2 Research — Driver of Innovation & Change

'Research' is the core function that gives HEIs innovative and transformative power. By gathering data, processing information and analysing findings, HEIs create new knowledge, find solutions and identify possible actions. Following Clark & Harley (2020), novelty and innovation are understood as central to HEIs and **effective SD strategies must be based on (sustainability) science.** The organisational structure and culture need to be open and provide niches and **safe spaces for experimentation.** User practices and regulatory structures must not interfere with novelty and innovation. It is essential to research not only on but also following SD. Such an approach includes recognising relationships between society and nature, problem-driven or goal-oriented research, looking at horizontal and vertical connections and having a consumption-production perspective (ibid.).

The European Union promotes **'Responsible Research and Innovation',** which emphasises the evaluation of effects and potential impacts on the environment and society—a criterion for which researchers are encouraged to account. More so, researchers can actively contribute to SD by finding alternatives and solutions that address various challenges. This assumption is based on a 'weak understanding' of sustainability, in which global challenges can be met with human-made solutions and resources can be substituted by artificial products.

Collaboration accelerates the pace of transformative change. 'Research' can benefit from new sources of knowledge by collaborating with new actors, such as citizens and practitioners, which relates to the element of 'Outreach & Partnering'. Stakeholders

who actively participate in knowledge creation, innovation, and decision-making processes tend to be more inclined to assume responsibility for addressing problems (i.e., problem ownership), adapt their behaviour, and exhibit receptivity to transformative changes.

Research is also the basis of 'education' through constantly producing and integrating scientific findings into existing curricula. Students are trained to become researchers themselves, for example, through 'inquiry learning'. Concerning 'Entrepreneurial Activities', scientific results are turned into practical business ideas, and new sustainable solutions and practices may become part of campus design and operations.

Measures to promote SD in research include, for example, new modes of research, including transdisciplinary and participatory research. By tapping into a wide range of knowledge sources, we can adequately address the intricate nature of sustainability challenges and work towards creating practical solutions. Collaborations with regional actors such as businesses, policymakers, and (organised) civil society work in favour of regional development towards more sustainability.

MEASURES

Measures in Research

- Employing Responsible Research and Innovation (RRI)
- Experimenting with and adopting new modes of research, including transdisciplinary collaborations, participatory (action) research, and citizen science.
- Research on and with SD to elaborate practical solutions.
- Introducing incentive systems, such as research challenges on sustainability, awards

Table 2.
Possible Measures in Research

2.3.3 Outreach & Partnering – Following the Third Mission

Knowledge transfer to society takes place through various formats and channels such as spin-offs, cooperation with companies, living labs, position papers, exhibitions, lectures.

As powerful institutions connected to research and education, HEIs are responsible for raising awareness for sustainability beyond their institutional boundaries through, for example, community engagement, outreach and partnering.

Since the beginning of the 21st century, HEIs have begun to take on more social responsibility by formulating a **'Third Mission'.** Third missions refer to HEIs' broader roles and responsibilities supplementary to their traditional teaching functions (first mission) and research (second mission). It encompasses the idea that HEIs have a social responsibility to **contribute to society in various ways besides their core activities.** Accordingly, Compagnucci and Spigarelli (2020) posit the third mission as a multidisciplinary, complex, evolving phenomenon linked to the social and economic mission of HEIs broadly.

The concept of 'third mission' comprises a wide array of activities undertaken by HEIs. These activities aim to **share knowledge with society and organisations while fostering entrepreneurial skills, promoting innovation, advancing social welfare, and cultivating human capital.** Moreover, a third mission involves the collaboration between science and society through various forms of communication and engagement with community/quadruple helix actors (Carayannis et al., 2018), i.e., academia, governments, business and civil society (Di Berardino & Corsi, 2018). Engaging with society also marks the third missions' transdisciplinary nature. Our futures are inextricably linked to our ability to achieve climate neutrality and SD. Transnational collaboration is desirable and indispensable, as it can provide substantial added value by facilitating the exchange of knowledge, including new perspectives and practices. The European Green Deal states clearly that all citizens will need the skills and motivation to understand and act on issues of SD. Therefore, HEIs should offer ways of civic engagement in their wider community, creating synergies and new opportunities, considering SD is a lifelong learning process (UNESCO, 2023).

Through (international) partnerships, HEIs can target SD in their institution and region whilst also contributing to finding solutions on a global scale. Participating in networks, alliances, and partnerships is vital for **sharing good practices and knowledge** and upholding stakeholders' motivation. This need for strong, international partnerships is also expressed in SDG 17 (Partnership for the Goals).

> In the realm of SD, HEIs have a vital role to play in comprehending and interpreting social needs, behaviours and habits, essential for the purposive co-creation of sustainable and just futures, which is also referred to as collaboration for the common good (Wright et al., 2022).

Based on the statement above, HEIs dedicated to fulfilling their third mission are responsible for partnering with quadruple helix actors. This entails nurturing a collaborative culture and establishing a recognition system that encourages and acknowledges these cooperative efforts within the HEI. In addition to transferring knowledge,

HEIs can proactively convey their commitment to SD, serving as a positive **role model** within their regions.

While SD means to act and progress in the best interest of people and the planet, HEIs will also become more resilient to future shocks and build a reputation for actively promoting SD in their region. SD is thus necessary for HEIs to **remain relevant, valuable and suited** to creating the smart, engaged and responsible citizens that world-class higher education is meant to produce. Measures to promote SD in outreach and partnerships include the following examples:

MEASURES

Measures in Outreach & Partnering

- Fostering a collaborative culture with quadruple helix actors and active engagement of external stakeholders increases motivation.
- Implementing a system of recognition and incentives for collaborations
- Introducing new formats and communication channels such as living labs, exhibitions, position papers and lectures
- Reporting on SD activities through science communication to facilitate visibility, reputation building and the establishment of a culture of sustainability within a region.

Table 3.
Possible Measures in Outreach & Partnering

2.3.4 Entrepreneurial Activities – From Theory to Praxis

Students, graduates and academic staff are encouraged and assisted to apply their entrepreneurial skills, sustainblility-related business ideas, and innovation rooted in scientific principles.

HEIs are increasingly responsible for promoting the transfer of innovation (technological, social, cultural) into practice. 'Entrepreneurial Activities' are therefore part of the outreach mission of HEIs. Hence, motivating and supporting students, graduates, and academic staff in their entrepreneurial endeavours is crucial. Start-ups are especially promising for the transformation of the economy because of their **innovative capacity, agility and promptness.** They build bridges between scientific findings and their practical implementation in the region and society. By teaching new entrepreneurial skills

through 'Education', HEIs assist the transformation of the economy and develop a new kind of entrepreneur who is socially responsible and makes informed decisions.

Accordingly, HEI should link their entrepreneurial education to sustainable competencies and 'green attitudes' across all sectors. Those interested in founding a company must be encouraged to take the chance and go for a green business in one of the sustainable sectors. **Governance structures must be open for different social, technological or cultural innovations.** In connection with the third mission, HEIs need to emphasise sustainable regional development in terms of human resources, ecology, economy, and mindsets. As influential regional actors, HEIs can contribute to initiating and orchestrating regional business, innovation and entrepreneurial/start-up ecosystems driven by potential, fostering a more sustainable future.

Measures regarding SD in 'Entrepreneurial Activities' are best integrated by aligning start-up strategies and support services with sustainability. The SDGs can be a helpful guide to thinking about the connection of business ideas to sustainability-related challenges.

MEASURES

Measures in Entrepreneurial Activities

- Entrepreneurial support programmes with a focus on SD
- Entrepreneurial consulting oriented towards SD
- Raising awareness through training and workshops
- Non-university partnerships (e.g., Impact Hubs)
- Awards, competitions for solutions for societal challenges
- Recognizing the potential for promoting a regional ecosystem

Table 4.
Possible Measures in Entrepreneurial Activities

2.3.5 Campus Operations – Experimentation & Learning by Doing

HEIs should become stewards of sustainable organisation management and operation.

The integration of the SDGs in campus design and operations is not only useful for conveying the 'hidden curriculum', but it also aligns with the EU's New European Bauhaus initiative, acknowledging the importance of **enriching, sustainable and inclusive places for practices and experiences** (European Union, 2023).

The **'hidden curriculum'** describes values and practices incorporated by the campus design that internal stakeholders adopt through informal learning. Therefore, HEIs should use their campus as a practical and inspiring example from which stakeholders can learn and adopt practices. The campus should invite stakeholders to experiment and **offer opportunity spaces for new forms of value co-creation** (Hinkel et al., 2020). Sustainable campus experiences could enable the discussion on global societal challenges, foster ecological literacy, and eventually lead to changed values and behaviours. Everett (2008: 243) proposes that internal stakeholders must develop an understanding of the "university's metabolism". This could be achieved through 'campus sustainability praxis' or as posited by Everett (ibid):

> "[...] a campus-centered form of community-based service learning in which the community that students serve is their own college or university as well as the local community in which it is situated, and the experiential learning focuses on concrete institutional change.

In such settings, students create a vision, set specific goals, develop a strategy, and work on recommendations for campus officials by collaborating with an interdisciplinary group (ibid.). They learn that **institutional change work is primarily routine** and learn how power is distributed within an institution.

The 'Campus Operations' measures range from resource management, mobility, and greenhouse gas emissions to food systems, land and water use, and questions of the regional ecosystem and finances to inclusivity and accessibility.

MEASURES

Measures in Campus Operations

- Sustainable campus design such as green buildings, food/book donation and recycling stations, accessibility for all
- Resource management (e.g., greenhouse gas emissions, re-/upcycling, water usage, vegetarian food in the cafeteria)
- Energy consumption and renewable energy
- Waste management (e.g., composting)
- Alternative modes of transport

Table 5.
Possible Measures in Campus Operations

- Learning and awareness-raising activities (e.g., community garden, experiments)
- Implementing SD through campus experiences through a 'hidden curriculum' (e.g., green spaces, encouraging social interaction)

2.3.6 Governance – Structures for Participation

Governance structures constitute the framework through which an organisation is guided and supervised.

Successful implementation and management of SD efforts at HEIs require appropriate governance structures. The governance structures of a HEI depend on its type and influence the execution of the other core functions by providing the frame for power relations and management. 'Governance' offers answers to the following questions:

Who are the HEI's key stakeholders (internal/external)?
How is power distributed among them? Is there room for participation?
How are stakeholders organised by the power relations (e.g. hierarchical, working groups, green officer, etc.)?
What are the rules and regulations concerning SD?
What incentives are implemented to motivate SD action and enable co-creation?

Table 6.
Guiding Questions for Governance

Governance structures determine the **degree of freedom for specific actors** by distributing responsibilities and power and allowing for or denying opportunities for participation and interactions. Through rules, regulations and incentive systems, governance represents the **organisational embeddedness of SD.**

Various studies indicate that leadership is widely recognised as a catalyst for driving change processes (Cebrià n et al., 2013). The authors highlight a disparity between leaders' capabilities to initiate transformation rather than merely adjusting organisational structures and procedures, and there is a need to modernise traditional governance structures. Sustainable HEIs should strive for a future-orientated, innovative, and

interdisciplinary transformation. They need to adopt policies and practices which maximise the HEI's contribution to the SDGs across teaching, research, and community engagement. While HEI leaders usually initiate and coordinate SD activities, students and staff are the ones actively involved in these activities (Toman et al., 2023: 44).

HEIs encounter difficulties translating their vision into actions because they lack clear responsibilities and adequate support (ibid.). Internal stakeholders need active involvement from leadership, and student-led activities need more systematic structures, such as student offices or student unions (ibid). Measures in 'Governance' align with the endeavour to allow participation and transdisciplinary collaborations.

Measures in Governance

- Rethinking structures and power relations
- Governing by participation: Enabling participation, including stakeholders' involvement in decision-making processes
- Establishing SD-related governance structures such as green offices
- Implementing incentive systems, policies and regulations
- Raising awareness and offering training opportunities

Table 7.
Possible Measures in Governance

3 Capacity Frame – What is Needed

What is meant by 'Capacity'?

Which capacities are vital for the successful implementation of SD?

What possible variables influence HEIs' capacities to transform?

How do capacities relate to context and the organisational culture and structure?

The second frame is called the 'Capacity Frame' and contains six key capacities as prerequisites for a successful SD implementation at HEIs. The capacities vary in significance depending on whether HEIs align their SD strategy with their institutional vision, strategic plans, or regional context. Following Clark and Harley (2020), 'Capacity' is the **intention and potential to accomplish a task or achieve a certain outcome.** The capacities presented in this section are based on practical implications found in sustainability science, which investigates nature-society interactions. They guide the different pathways of SD, facilitate the transformation of visions into concrete actions, monitor and evaluate results, and take corrective action in an iterative and open-ended pursuit of SD (ibid.).

The SDS4HEI framework adopts the **six capacities** introduced by Clark and Harley (2020). Each capacity comprises several 'variables' (V) – **elements liable to vary or change.** Although the variables shape the respective capacities, tensions between them also exist. An HEI does not need to possess all six capacities. Different SD strategies require distinct capacities to link concrete actions to selected regional SDG targets meaningfully. In general, however, it can be said that building the six capacities allows HEIs to initiate transformation processes and become an **'Integrative HEI'.**

In the following, the six capacities are briefly described, as well as the relationship between them and their relationship to the elements of other frames.

3.1 Capacity 1 // Measuring Progress

Suppose we view SD as the many pathways towards harmony between current and future needs and between various aspects of sustainability, HEIs should be capable of making well-informed decisions considering the resources at their disposal.

Progress becomes visible through measuring, managing and balancing the use of resources (capital).

Concerning SD, measurement must take two forms: **(1) Measuring and reflecting on current paths** and **(2) evaluating the impact of future pathways.** Monitoring and measuring the stocks of different resources (means) in a specific ecosystem rather than the flows of goods and services allows us to show progress made over long periods (Clark & Harley, 2020).

How can HEIs identify their most important resources? Following Clark and Harley (2020), resources can be divided into two major categories – **natural capital and anthropogenic capital** – further divided and made measurable by 'representative resource stocks'. Natural capital refers to the stock of natural resources and ecosystem functions, while anthropogenic (man-made) capital comprises manufactured, human, social and knowledge capital (Clark & Harley, 2020; Kachler et al., 2023).

Resources considered important and stocks assessed suitable as representatives depend on a HEI's 'contextual frame', including regional challenges and the 'institutional frame' – the institution's type, structure and culture.

Table 8. Resources Stocks for Well-being in HEIs Ecosystems

Resource Group	Specific Resource Group at HEI	General List of Representative Stock Resources
Natural Capital		
Ecosystems	Number of students, education with SD focus, collaborations	Biomass, biodata, communities
Environment	Land use, population	Climate, quality and quantity of land, air, water
Minerals	Fossil fuels for university operations, transportation	Fossil fuels, iron, sand
Anthropogenic Capital		
Manufactured Capital	Number of green buildings, renewable energy, alternative transportation	Roads, buildings, infrastructure
Human Capital	Skilled individuals	Campus communities (incl. external stakeholders) health, educational level, distribution
Social Capital	Regulations on resource usage, incentives for participation, accessibility, inclusion	Institutions include rules, norms, rights, culture, networks, etc.

Resource Group	Specific Resource Group at HEI	General List of Representative Stock Resources
Knowledge Capital	Diversity, entrepreneurial and sustainability-related skills, Transdisciplinarity	Indigenous, practical, scientific

Source: Based on Clark & Harley (2020: 334)

As shown on the following page, the variables affecting HEIs' ability to measure progress are represented by **six key steps** identified as essential preliminary efforts for HEIs to establish the capacity for progress measurement.

TOOL

Tool 2.
Six Steps Towards SD Measurement

Step 1: Choosing Central Goals

As a first step, HEIs must define their central goals. The SDG targets can be used as an orientation and align with an institution's strategic plans or the potentials and challenges identified in the 'contextual frame'.

Step 2: Defining Relevant Resources

Subject to the respective contextual frame, i.e., the ecosystem in which the HEIs are situated, HEIs must decide on meaningful representative stock resources in the two main categories (1) natural capital and (2) anthropogenic capital.

Step 3: Finding Meaningful Indicators

To gauge resource stocks, HEIs must establish measurement systems with useful indicators. Data needs to be at hand and cover all dimensions. However, many HEIs concentrate their measuring and reporting efforts on the environmental dimension of SD. Informative indicators need to be meaningful (represent information), relevant (reflective), direct (closely measure change), objective (have a clear operational definition of what is being measured and what data need to be collected), reliable, helpful, understandable (easy to comprehend and interpret) and practical. Aspects such as data collection costs and time resources are inhibiting factors.

Step 4: Evaluating Impact

One of the biggest challenges for HEIs is making the impact of their SD efforts visible and measurable. Deciding on specific SDG targets makes progress more concrete and impact more visible

within a region. Developing a 'Theory of Change' linking impacts to activities, outputs, and outcomes can assist in doing so.

Step 5: Adopt Integrative Perspective

HEIs are able to perceive all relevant resources as part of a particular context. They can determine the social value represented by resource stocks, move beyond single resources and asses the interactions between the different resources categories.

Step 6: Evaluate Governance Structures

Finally, HEIs should be able to evaluate the efficacy of new governance arrangements and mechanisms, for they are essential for managing and measuring resources.

3.2 Capacity 2 // Promoting Equity

Suppose SD is understood as fairness and justice among present and future generations, 'promoting equity' is necessary to implement SD strategies.

Power relations determine the distribution of various forms of capital, opportunities and degrees of freedom.

Consequently, power differentials among actors lead to inequality. Different factors can influence power relations, for example, race, class, gender and generation. While SDG 5 (Gender Equality) specifically promotes gender inclusion, HEIs also need to include people with disabilities, migrant backgrounds, people living in rural or remote areas and those facing socio-economic difficulties or other discrimination (SDG 10 - Reduced Inequalities). HEIs are often the first place where those who have faced exclusion or been marginalised can find acceptance and support. While talent scouting, inclusion and accessibility allow more people to gain the necessary skills and knowledge to become informed citizens ('Education'), diverse knowledge resources boost innovation ('Research', 'Entrepreneurial Activities').

Governance structures are incredibly influential in promoting equity, giving an institution its legal structure and ascribing specific roles, responsibilities and power to actors. Additionally, the contextual frame and the dominant culture within an organisation and the wider region play a crucial role. Accordingly, **governance can promote equity** by critically reflecting on current structures, looking at the cultural dimension (values and norms) inscribed in laws, rights and regulations, and collaborating **with**

different stakeholders and bottom-up initiatives, such as student movements. The following variables, amongst others, can support the capacity to promote equity:

VARIABLES

Table 9. Variables supporting the Promotion of Equity

Equal Access to Resources

HEIs need to increase access to education, for example, via talent scouting, accessibility and support structures. Through collaborations with companies and other organisations, HEIs can ensure employability. Following the 'Third Mission', knowledge must be made available to society and the economy.

Mechanisms of Redistribution

The redistribution of resources needs adequate support structures that allow for a flow of benefits. In this regard, new governance structures and incentive systems are required. Entrepreneurial activities and new modes of co-creation add to this variable.

Empowerment of Actors

Empowering actors who remain invisible under current pathways of SD is another vital variable. Governance paired with campus design can give actors the freedom and capacity to pursue visions of SD through experimentation. Additionally, participation in decision-making processes helps stakeholders to feel heard and motivated and creates a 'culture of sustainability' through engagement.

Restructuring

Although parts of traditional governance structures remain relevant, such as solid leadership for SD, a restructuring in favour of more participation in decision-making processes is also required. HEIs must contemplate and reshape power dynamics among actors, resources, institutions, and objectives to advance equity. It requires conventional top-down efforts paired with bottom-up participatory input.

Inclusion

Inclusion describes the possibility of diverse stakeholders shaping institutional structures, including rules and norms, to serve their interests. HEIs should address barriers to inclusion in all of their core missions.

3.3 Capacity 3 // Adaptability

As a journey with changing paths and an uncertain destination, SD is constantly threatened by unexpected events. SD strategies can become unsustainable due to unknown future challenges, shocks, and disruptions.

> Adaptive capacity refers to the capability to address potentially disruptive changes in a manner that enables the system to function within its existing structures and continue pursuing its objectives.

SD necessitates adaptive capacity at the individual and organisational levels to shape transformative change successfully. Decision-making and purposeful navigation are essential elements of adaptability. Because not all changes are adverse, adaptability offers more than just the potential to reduce harm; it also unveils fresh prospects and enhancements along the current trajectories.

Adaptability should not be mistaken for resilience, the ability to bounce back swiftly and progress with newfound knowledge, or for transformation, which pertains to fundamental changes in systems or society. The following variables can be considered essential for adaptability:

Table 10. Variables supporting Adaptability

VARIABLES	
	Understanding Dynamics The challenges of climate change are complex, and its effects are difficult to anticipate. Therefore, SD must operate on multiple timescales (present and future), broaden its perspective from short-term risk reduction to long-term progress and change, and consider global effects. Interrelations and dynamics play a crucial role concerning SDG targets. Trade-offs and conflicts are inevitable and must be navigated.
	Flexibility While static assessments are essential for SD, adaptability also requires dynamic assessments to redirect pathways.
	Networking & Modularity Institutions become more flexible and can adapt to multiple challenges through networking. The connectivity in a network is best arranged by the concept of modularity, characterised by relatively tight connections between sets of elements that promote

complementarities (modules) but with modules being relatively weakly connected.

Collaboration

HEIs should work with different stakeholders and participate in networks and alliances to design interventions, including solutions, visions and policies.

Innovative Capacity

HEIs must be open for experiments and interplay with actors, institutions, goals and resources to create new practices and values.

3.4 Capacity 4 // Transformative Capacity

SD is an ongoing, open, and reflexive process that requires transformative changes, just as transformative change is a complex, co-evolving process that arises from intricate interactions among numerous stakeholders and contextual dynamics (Avelino et al., 2019).

> Transformative capacity denotes the capability of individuals, organisations, and societies to purposefully instigate profound change by exerting influence on co-evolving transformative change processes, resulting in collaborative impact production.

Instead of only adapting to challenges and disruptions, HEIs have to be able to **qualitatively change their pathways** – moving away from unsustainable paths to more sustainable ones. While research and innovation can be seen as drives of transformative change, people develop the necessary competencies and gain knowledge for transformative action through education and outreach. Governance must create safe spaces and opportunities within the organisational structure (transformational leadership), and social actors must adopt new values, beliefs and behaviours ('Organisational Culture'). Transformative narratives and imagery emphasise humans' ability to shape society and the environment. Changes in the 'Contextual Frame' can make transformation necessary, facilitate it, or complicate pathways. Transformative HEIs **reflect on themselves, are future-oriented, innovative, and transdisciplinary** and are capable of **changing their values and operations.** A transformation of HEIs requires a 'whole-institution' approach and relies on 'organisational learning'. HEIs become influential

change agents in their region through 'Third Mission' efforts. Variables important for the capacity to transform include the following:

Table 11. Variables supporting Transformative Capacity

VARIABLES	
	Embracing Intertwined Dynamics Transformation must be viewed as a dynamic process entailing multidimensional shifts and qualitative changes in SD pathways.
	Managing Connectivity Transformation depends on the HEI's capacity to manage the connectivity between the micro- and meso-level and cross-level interactions regarding the flows of novelty. While introducing innovations and initiating change processes, stability must be secured.
	Promoting Transformation HEIs can promote qualitative transformations through incentives. The promotion of such a process is a necessary condition for SD.
	Stimulating Innovation At the heart of every transformation lie innovations. HEIs may stimulate innovative processes through incentive systems, the uptake of results, their promotion and distribution and the transformation of practices at the system scale.
	Aiding Novelty Novel solutions typically originate at the micro-level of organisations, encompassing technologies and [or] practices, institutional arrangements, actors' objectives, values, behaviours, and knowledge related to SD.
	Overcoming Path Dependence To leave or break established (non-sustainable) paths and overcome path dependencies, HEIs must have the capacity to disrupt established power structures, established rules, values and norms and surmount obstacles to reconfigure the HEI.
	Integrating Anticipation & Imagination HEIs should shift from sole anticipation and pathways aimed at risk avoidance (e.g., employing assessments, foresight exercises, scenarios) to fostering imagination (e.g., shared visions, goals, possibilities). Collectively shared imaginaries of a promising

future can motivate action towards new development pathways and exemplify the practical dimension of innovations.

Integrating Siloed Approaches

The pursuit of SDG targets should not happen in isolation and should not be confined solely to individual sectors or academic disciplines. A transformative HEI must handle diverse interests, approaches, and potentially conflicting objectives adeptly.

3.5 Capacity 5 // Transfer Capacity (Praxis)

Knowledge capital is a crucial resource for HEIs. To actively participate in SD, challenge behaviours and beliefs and find solutions to global challenges, HEIs need the capacity **to transfer knowledge to immediate and concrete action.**

Praxis describes the process of translating theory, lessons, or skills into practical application. It encompasses the act of applying, materialising, and embodying ideas, along with active engagement, exercising, and practicing of knowledge and skills.

Knowledge transfer is integral to 'Outreach & Partnering' and 'Entrepreneurial Activities' and has become increasingly important in 'Research' and 'Education'. Research on SD and learning for SD concentrates on **finding solutions for real-life challenges that are experimented on collaboratively, tested, and adapted within the contextual frame.** New methods of knowledge production, such as action research and citizen science, rely on greater participation from unusual social actors and increase the chance of adopting new practices. For SD to transform from innovation to institutionalisation, new activities must be consistently carried out for a sufficient duration until they become part of routines. The following variables influence HEIs' capacity to link knowledge to actions:

VARIABLES

Co-producing Knowledge

Knowledge and society mutually shape each other. Stakeholders actively engaged in knowledge creation and developing new pathways for SD are more likely to put these into practice. Therefore, co-production and co-creation should be central to HEIs' core mission.

Diversifying Sources of Knowledge

Available knowledge can be enhanced and diversified by using multiple sources of expertise, for example, by including different actors from the 'contextual frame', conducting interdisciplinary research and education, and enhancing participation with the help of new governance arrangements.

Fostering Trustworthiness

People only adopt knowledge and [or] novel solutions/practices if they meet specific criteria, labelling them as 'trustworthy'. These criteria include saliency, credibility, practical relevance, and political legitimacy.

Boundary Work

'Boundary work' describes the efforts of HEIs to organise their relation to the multitude of borders found in science, culture, academic disciplines and society. Boundaries are flexible, performative and socially constructed and can be relocated or broken down by, for example, transdisciplinary research, new sources of knowledge, and policy making.

Training People

Education goes beyond just students; it should empower all stakeholders, both within and outside HEIs, with the skills necessary to translate knowledge into practical action. Extending HEIs' training offerings to the broader community has the potential to expedite SD within society.

Integrating Siloed Approaches

The pursuit of SDG targets should not happen in isolation and should not be confined solely to individual sectors or academic disciplines. A transformative HEI must adeptly handle diverse interests, approaches, and potentially conflicting objectives.

Table 12.
Variables affecting Transfer Capacity

3.6 Capacity 6 // Governing

'Governance' has already been discussed in the context of the 'Organisational Frame', in which it represents an overarching function within HEIs. However, by acting within the established structures and challenging these, governing is considered an essential cross-cutting capacity.

> Governance arrangements refer to the distribution of power dynamics among various elements (actors, resources, goals), which vary depending on the specific context or situation in which they operate.

Governance arrangements allow people to **work together in exercising other capacities** and joining forces to achieve SD. They **guide the use of shared resources** fairly and durably and manage the uncertainties of SD, for example, in the shape of trade-offs between SDG targets, competing visions and different understandings of sustainability.

Governance, including power relations, determines **who gets to say what** and decides what is desirable. It reigns the process, allocates resources and outcomes, and influences whether certain goals are reached. Governance is **the sum of efforts to stabilise or change existing institutional structures** (e.g., rules, regulations, norms, and practices). Due to the dynamics of SD, governance structures must be flexible, modular and open to experiments.

> Governing refers to the way people work within and around governance structures of formal authority to get things decided and done. It is understood as the activities that make a purposeful effort to guide SD.

The following variables shape a HEI's capacity to organise its elements and guide its diverse social actors:

VARIABLES

Table 13. Variables affecting Governing

Opening to Creative Design

SD revolves around balancing disparities within and between generations and addressing power dynamics. Governance structures should be able to orchestrate stakeholders, alleviate conflicts, empower individuals seeking a fulfilling life, and allow them to assess their efficacy.

Encouraging Reciprocity

Reciprocity, as the mutual exchange of benefits or privileges among individuals, groups, or institutions (social norm), enables the establishment of sustainable and ongoing relationships based on mutual give-and-take. Encouraging reciprocity in what is asked of them builds trust among actors and facilitates communication.

Spatial Rescaling

Contemporary governance expands beyond single organisational tiers and now operates across multiple interconnected levels, from local to national and even global scales.

Engaging New Actors

Participatory governance strategies are more likely to successfully balance flexibility and stability when they purposively engage stakeholders early and often. Governance should be able to respond to feedback and changes in the contextual frame while being stable enough to function as a framework for actors.

Polycentric Systems

Multiple sources of partial authority interact to create multi-level governance arrangements that may or may not guide collective behaviour toward shared goals.

Expanding the Tool Kit

Formal rules and regulations are necessary to guide collective behaviour toward more sustainability. These, however, are to be enriched by complementary tools, including generative tasks such as identifying emergent issues and openly discussing them, promoting norms, and governing through goals.

Rejecting Panaceas

With SD, there is not one right way to guide change. Instead, it is vital to match governance arrangements to the characteristics of

the action situation being governed, the contextual frame and the organisational culture.

Being Reflective

Governance must be able to question its core commitments, using foresight to balance the interests of present and future generations and achieve long-term SD, i.e. reflexive governance.

Enhancing Equity

Action is not only driven by rules and regulations alone but also by norms. Governance must foster values promoting human rights, environmental justice, intra- and intergenerational equity, etc. Empathy and bottom-up approaches, e.g. student movements/initiatives, are useful.

TAKEAWAYS

The 'Capacity Framework' comprises **six essential capacities** necessary for the effective implementation of SD within HEIs:

- Progress measurement capacity
- Equity promotion capacity
- Adaptive capacity
- Transformative capacity
- Transfer capacity (Praxis)
- Governing capacity

The **significance** of these capacities differs depending on whether HEIs align their SD strategy with their institutional vision and strategic plans or with their regional context. Additionally, different SD activities build on different key capacities.

Leanings:
What to take with you?

4 Contextual Frame

What distinct contexts constitute the 'Contextual Frame'?
Why is connecting SD strategies and actions with the wider region useful?
How do SDGs and regional context interact?

The 'Contextual Frame' is the outermost frame of the SDS4HEI Framework Model. It represents an overarching dimension consisting of the various contexts by which HEIs are shaped and which are reciprocally shaped by them. Cultural, social and physical settings influence every human interaction. Therefore, **the contextual frame considers the general conditions determining culture, efforts, and scope of actions** regarding SD in a particular region. The frame contains (1) the political, (2) the institutional, (3) the economic, and (4) the societal/cultural context.

Although climate change and its effects are a global challenge and the multidimensional and complex SDGs are considered a blueprint shared worldwide, context still matters. Across all HEI disciplines — entrepreneurship, humanities, the Arts, etc. — curricula align with international quality standards. However, there remains variation in how they are taught within the context of SD. This diversity is accentuated by industrial/economic histories, meaning that some countries are stronger in, say, Economics, while others excel in Humanities.

In addition, not every SDG is equally important to every region and HEI. For example, regions close to the sea may want to target different SDGs (e.g., SDG 14 – Life Below Water) than smaller universities of applied sciences in the countryside (SDG 11 – Developing Sustainable Communities). The setting of goals and the implementation of activities are never done in a 'vacuum space'. Instead, regions possess various SD needs, barriers, opportunities, and potentials. With the help of the SDGs, HEIs should aim to select targets that support regional development whilst also impacting the global level. HEIs can either choose a **(1) challenge-orientated approach,** focusing on the necessities that need to be addressed to secure the quality of life in the region, or a **(2) potential-orientated approach,** building on already made advancements in the region.

Relevant elements in the contextual frame that impact HEIs' efforts to implement SD strategies are called **'factors' (F).** In the following, the four essential frames constituting the contextual frame will be described briefly:

4.1 The Societal/Cultural Frame

The societal and cultural frame refers to the values and beliefs shared by a society within a region.

The region's history and traditions influence societal/cultural frame. **Culture** finds its expression in many different factors, for example, language, values, norms, artefacts, rituals, clothing, stories and symbols. It plays a crucial role in shaping how SD and transformation are **comprehended,** how the imperative for action is **perceived** and enacted, and whether and how SD and transformation efforts are **evaluated.**

Through narratives, this frame also **influences the expectations and motivation** of regional actors, including HEIs, political actors and companies, to participate in shaping a more sustainable future. Tension arises when actors with different values, interests or understanding of SD (weak vs. strong) must engage in joint endeavours. Culture, as a frame for social interactions, is closely related to the societal frame.

The **social context,** also known as the milieu, describes the immediate social and physical conditions of people that form their environment. It influences how someone perceives and reacts to something in a specific situation. Additionally, the institutional and political frame also shape how actors interact with one another in a social context. Factors include social roles, economic status, language, expectations, solidarity, social groups, and demographics.

Concerning SD, HEIs might want to ask themselves:

What is it that the society in our region needs?

4.2 The Institutional Frame

The institutional frame describes the systems of formal laws, regulations and procedures that shape socio-economic activities.

The **institutional frame** impacts SD through factors such as rules, laws, regulations and actors', including HEIs', practices have to adhere to in one region. It creates opportunities for, facilitates or limits sustainable endeavours.

In the context of SD, the ideal institutional frame would equally integrate the three sustainable dimensions (economic, social, and environmental). It should be inclusive, transparent and effective. The institutional framework for sustainable development should be **action- and result-oriented**, giving due regard to all relevant cross-cutting issues to contribute to the implementation of SD. Forms of government influence the institutional and political frames.

HEIs might want to ask themselves:

What does the institutional frame facilitate or impede when it comes to sustainable activities and their diffusion?

4.3 The Economic Frame

The **economic frame** encompasses factors relating to the **dominant economic system** within a region, including unemployment rates, number of patents issued, gross national product, amount and kind of education, general income and income inequality, upward economic mobility, number of new businesses and exchange rates.

All these factors influence regional development and can be connected to SD. HEIs can impact a person's ability to access the labour market by teaching entrepreneurial skills and ensuring employability. University spin-offs shape the economic frame through agility, innovation and potential growth. Additionally, international partnerships and knowledge exchange also help to adopt SD practices.

The political frame influences the economic frame through policy choices, research through new findings and technological advances.

HEIs might want to ask themselves:

What are the needs and potentials of our regional ecosystems and where can we add value?

4.4 The Political Frame

The political frame describes the predominant structures of political power and how they directly or indirectly influence the decisions of actors and institutions.

Important factors influencing the **political frame** include economic conditions, identity politics, government policies and initiatives, ideologies, interest groups, world events, political systems, social issues and activism. Politics are concerned with **making choices and decisions** for a region, and political actors engage in negotiating, compromising and pursuing goals.

HEIs can support a political power to foster or challenge **specific agendas**. Legal restraints and policies impact the effectiveness of SD measures, and political events may have a disruptive effect, making adaptations of the pathways necessary. The political frame greatly influences which subjects become part of the political agenda and are considered for further support and funding.

Concerning SD, the political frame may or may not support sustainable innovations and the system's transformation.

HEIs might want to ask themselves:

Which political force do we want to support to accelerate SD, and where must we intervene to challenge given political frameworks?

TAKEAWAYS

Context matters: The contextual frame considers the general condition determining culture, efforts, and scope of SD-related actions.

HEIs can opt for **(i) a challenge orientation,** focusing on the necessities to be addressed to secure the current and future quality of life in the region or **(ii) a potential orientation,** building on advancements made in the region.

Leanings:
What to take with you?

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.

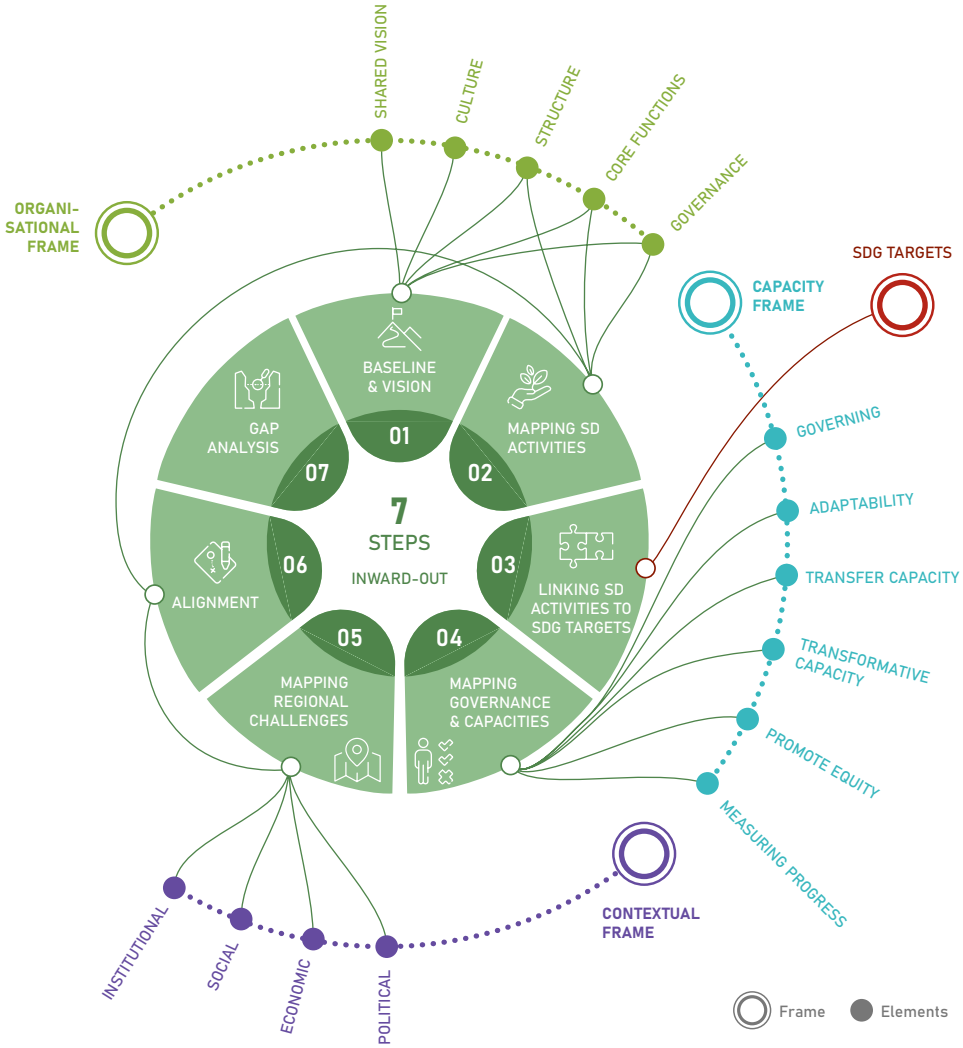


Figure 2.
Integrated Model

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.

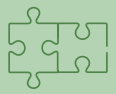
SDS4HEI Strategies will …

- 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.

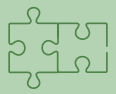
Overview of the Implementation Process (Inward-out)

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)

						
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
			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						

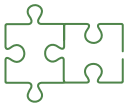
Table 20.
Checklist 'Governing SD'

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.

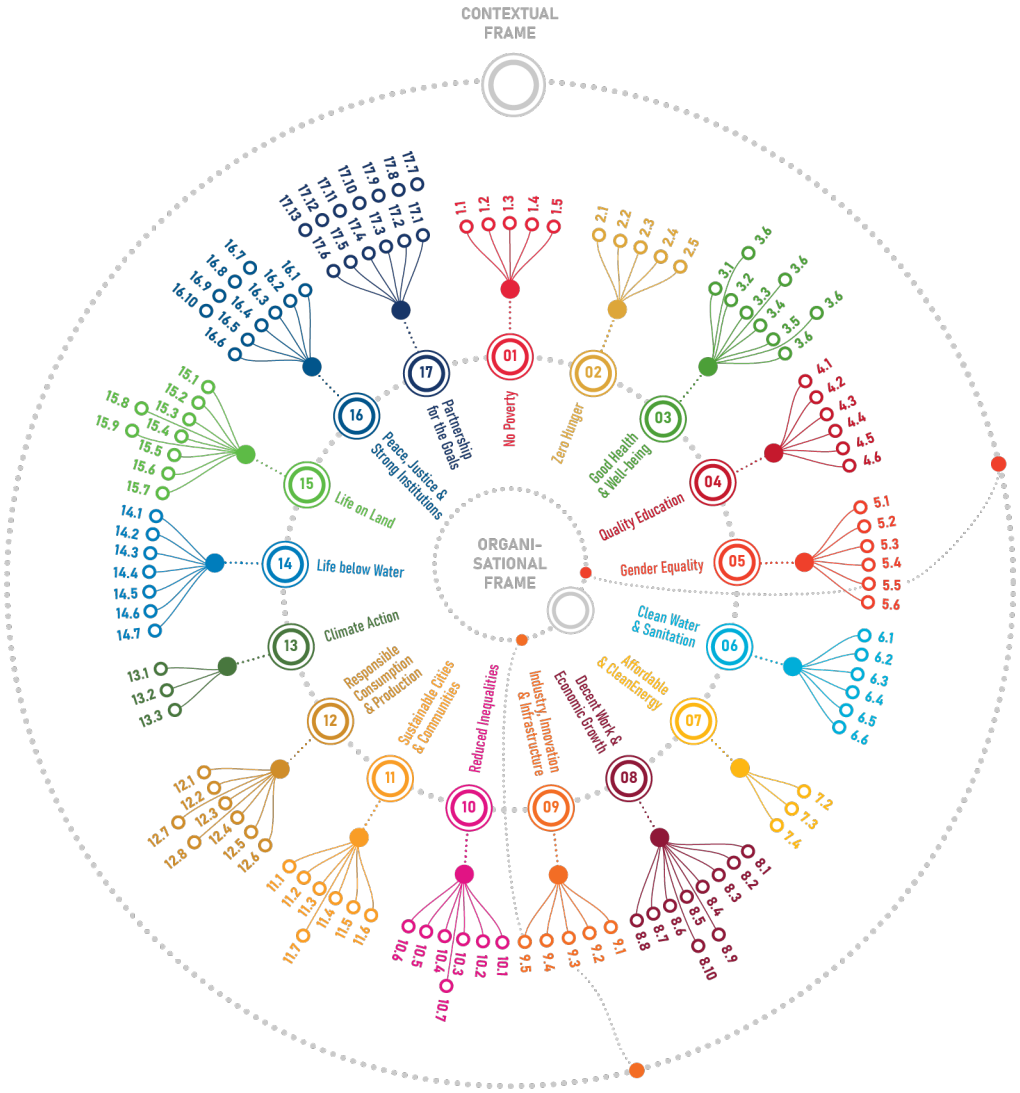


Figure 5.
Linking Activities to SDG Targets

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'.

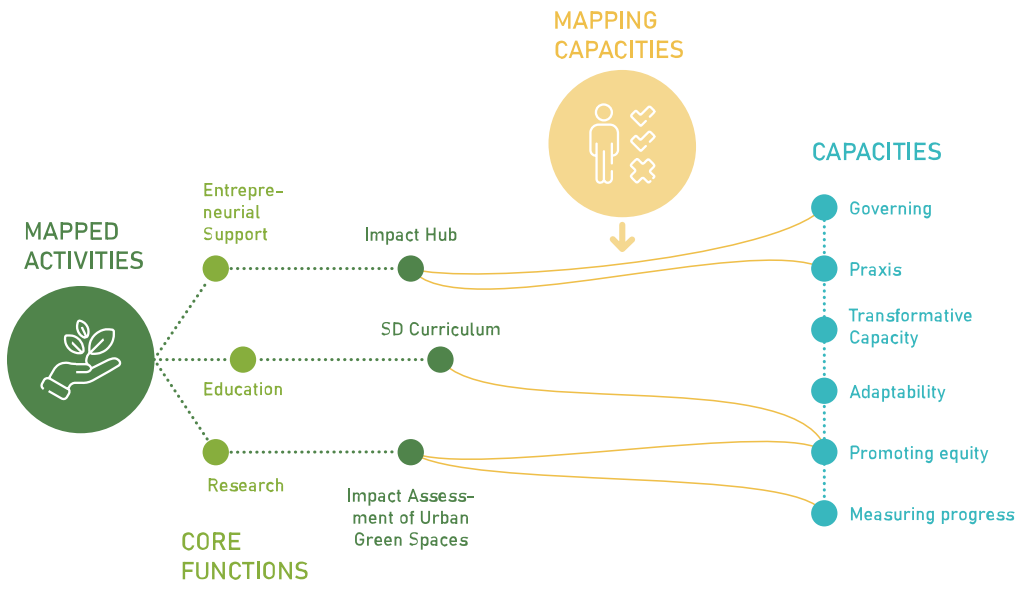


Figure 6.
Mapping Capacities

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).

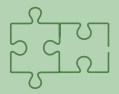
Overview of the Implementation Process (Outward-in)

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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