

Article

The Role and Contribution of Sustainable Development Goals as a Transformative Framework in Higher Education: A Case Study of the University of Split

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Abstract: This study examines the role and contribution of the Sustainable Development Goals (SDGs) as a transformative framework in higher education (HE), focusing on the University of Split (UOS), Croatia. By applying a qualitative longitudinal methodology, it examines how UOS has engaged with the SDG agenda while overcoming the challenges of institutional disintegration, resource scarcity, and cultural change. Data from strategy documents, action plans, and interviews with university leaders reveal a significant evolution in UOS's strategic alignment with the SDGs, from initial compliance to a more integrated and systemic approach. This study applies Steele and Rickards' framework of institutional engagement and innovation culture and positions the UOS journey as a pathway to a transformative scenario. The findings highlight key drivers such as strategic planning and policymaking, as well as barriers such as fragmented governance and cultural resistance that shape the UOS journey. This research contributes to the understanding of SDG implementation at universities in former transition countries and provides insights into the use of the SDG framework to drive systemic change in higher education.

Keywords: sustainable development goals (SDGs); higher education; transformative framework; former transition countries; systemic change; SDG implementation; qualitative longitudinal methodology



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1. Introduction

Sustainable development is a topic that has progressed constantly since the 1980s. In 2015, it reached a new momentum when government leaders from 193 countries adopted the United Nations' Agenda ("Transforming our world: the 2030 Agenda for Sustainable Development") containing 17 Sustainable Development Goals (SDGs) and 169 targets [1]. The SDGs have three important attributes: (1) they cover a broad range of issues, from socio-economic and environmental development to gender inequalities and access to justice; (2) they apply to all the world's countries; and (3) the SDGs expand the focus beyond primary and secondary education to include higher education institutions (HEIs) [2].

Although the topic is still in its infancy, there is growing evidence that HEIs play an important role for SDGs through the dimensions of education, research, outreach, and management [3,4]. Malešević Perović and Mihaljević Kosor [5] (p. 517) argue that the role of universities is vital in supporting SDGs because "its students represent a mechanism through which the transformation of the society towards sustainable development becomes possible". García-Feijoo, Eizaguirre, and Rica-Aspiunza [6] add that universities "play an essential role in providing future professionals with the necessary skills and competencies

to respond to the sustainability challenges identified in increasingly complex and global contexts". In their study among 65 developing, transition, and developed economies, Leal Filho, Lange Salvia, and Pires Eustachio [7] report that HEIs recognize SDGs as an opportunity for collaboration within the university and between universities, where HEIs from transition and developing economies showed higher scores for both teaching and research dimensions. These differences are not further explored by the authors but are in line with Chankseliani and McCowan's [2] discussion and an appeal for more research outside the Western developed world.

Universities are rapidly moving forward to support the implementation of the 2030 Agenda [8]. Initiatives are being developed in institutions around the world to reach the SDGs [9]. Numerous declarations have been signed by HE leaders and more than 42 national and international networks dedicated to this cause have been established in the past two decades. Initiatives supported by the United Nations, such as the Higher Education Sustainability Initiative (HESI) and the Sustainable Development Solutions Network (SDSN), have played a crucial role in advocating for the Sustainable Development Goals (SDGs) among HEIs [10]. A guide prepared by the SDSN Australia/Pacific and The Australian Campuses Towards Sustainability (ACTS), "Getting Started with the SDGs in Universities", argues that "it is likely that none of the SDGs can be fulfilled without the involvement of this sector" [11] (p. 3). The important role of HEIs in achieving SDGs was further strengthened in 2019 when Times Higher Education (THE) introduced Impact Rankings (IR), which assess universities' performance against the SDGs across four broad areas: research, stewardship, outreach, and teaching. The rankings have been published every year since and witnessed a sharp rise in the number of participating universities, from 450 universities in 2019 to 1591 universities from 112 countries in 2023 and 2152 universities from 125 countries in 2024 [12].

Encouraged by these trends, growing numbers of studies attempt to investigate how HEIs can assist in the implementation of SDGs. For instance, the use of SDGs in academic research [13], the implementation of SDGs through teaching [14], or through the transformation of their operations [15]. However, Steele and Rickards [16] argue that "the SDG-university relationship is one of co-production" and that the common belief that HEIs only assist in achieving SDGs places HEIs as passive observers. The role of HEIs is much more complex because they are at the same time drivers of the needed changes and also targets of change. Universities must ensure that "they are modelling the sort of approaches and impacts they want to engender" [16] (p. 26). More importantly, placing HEIs only as objects of SDG implementation ignores the universities and how universities change themselves in response to the SDGs. Namely, the agenda set by the SDGs does open many opportunities but also challenges for universities. Steele and Rickards [16] report that many universities face barriers and are not set up to contribute in any significant scope to the SDG agenda. They explain that the SDGs must be embedded in everything that universities do, from teaching, leadership, and activism, in order to become a transformative agenda.

Our study attempts to address this gap and investigates the role and contribution of the SDGs as a transformative framework within the HEI setting. We draw on the model by Steele and Rickards [16] and investigate the strategic direction of the UOS, Croatia, in its engagement with SDGs. In the context of sub-representation of studies outside the Western developed economies [2,17] and, in particular, former transition economies [18], UOS is an interesting case to study how a young HEI from a former communist country is at the same time restructuring and responding to the new challenges imposed by the SDG agenda. This study adopts a longitudinal qualitative methodology [19–21]. Data collection methods include the review of documents (content analysis) and in-depth interviews with the former and current management team in the period from 2021 to 2024. Through an

analysis of annual reports and strategic plans, this study investigates how the SDG agenda has come to be articulated in UOS strategies. Second, in-depth interviews with former (4) and current university management (6) and the staff employed at the science office (2), are carried out from May 2021 to July 2024. While this study provides valuable insights into the University of Split's commitment to the SDG agenda, the scope of the qualitative analysis is limited to interviews with university leaders and staff directly involved in strategic planning and implementation. The views of professors, students, and external stakeholders were not considered. This limitation means that the results reflect a focused but incomplete view of the development of sustainability within the institution. Flick, von Kardorff, and Steinke [22] (p. 4) emphasize that in qualitative research "utterances can only be understood in relation to some context", which especially relates to case study research [23,24]. The historical background, the setting of a former communist country, and the transition to EU membership together with the higher education sector in Croatia are also examined.

2. Literature Review

2.1. SDGs in the University Setting: Focus on Research, Teaching, and Operations

Universities have become key players in the implementation of the SDGs, engaging with this agenda across multiple domains, from teaching and research to the operational transformation of their campuses. The role of HEIs in the 2030 Agenda is multifaceted, going beyond merely supporting the SDGs to being critical change agents [3]. Universities have embraced the SDGs through four primary dimensions: education, research, outreach, and management [4]. Each of these dimensions plays a crucial part in contributing to global sustainability efforts.

Alcántara-Rubio et al. [25] conducted a systematic literature review, revealing that although publications on the SDGs in HEIs have increased, academic efforts remain focused primarily on research and teaching. Their results show that in terms of the actions carried out by HEIs to implement the SDGs, the most popular was the "integration of the SDGs in the curriculum" (p. 1599). Similar results are reported by Leal Filho et al. [9], which implies that HEIs address the SDGs from their two main areas, teaching and research. Leal Filho et al. [3] conducted a study across 17 countries among researchers and administrators working on sustainability issues. Only 32% fully apply SDGs in the university teaching activities, 40% partly apply them, 11% a little, and 18% do not apply them at all, implying that the integration of SDGs into university teaching remains in the early stages. The respondents stated that insufficient training and the challenges of embedding SDG content within courses are the main challenges for integration. Several authors advocate for compulsory courses focused on the SDGs [26], while others emphasize the continued need for interdisciplinary and transdisciplinary approaches in education for sustainable development [27,28]. Another perspective is outlined by Buil-Fabregá et al. [29], suggesting that universities can incorporate the SDGs into learning and teaching practices through diverse student experiences. Killian et al. [30] draw attention to the often-overlooked influence of the "hidden curriculum" on student engagement with the SDGs. Through an undergraduate module at the University of Limerick that engages students with the SDGs through experiential learning and community partnerships, students showed significant development across several graduate attributes, including responsibility, teamwork, and social media skills. Many reported heightened awareness of social issues and increased confidence in using social media for social causes. Similar results are reported by Aramburuzabala and Cerrillo [31], where service learning appears to be a successful methodology for the integration and development of SDGs. Furthermore, the study by Anholon et al. [32] examines an innovative interdisciplinary and multiregional approach to corporate sustain-

ability (CS) education conducted with students from different disciplines in Brazil, Chile, and South Africa. Through the use of action research methods, this course emphasizes hands-on learning aligned with the SDGs. The results highlight the effectiveness of such an approach in improving the understanding of CS, developing critical thinking and teamwork skills, and addressing integration issues in sustainability education, such as inadequate training and complex curricula.

Research is a fundamental dimension through which HEIs contribute to the achievement of the SDGs. Leal Filho et al. [7] conducted a study across 65 economies and demonstrated that HEIs play an essential role in advancing SDG research, with institutions in transition and developing economies often showing higher levels of engagement in teaching and research compared to their developed counterparts. This research supports the idea that SDG-related academic work is not confined to a specific region, but rather extends globally, contributing to the development of knowledge in areas critical to achieving the 2030 Agenda. Further studies, such as Salvia et al. [13], have examined how SDG research output has expanded, particularly through interdisciplinary approaches that address complex global challenges like climate change, inequality, and resource management. Their study included 266 experts, mainly professors or researchers, from North America, Latin America/Caribbean, Africa, Asia, Europe, and Oceania. Their findings show that there is a correlation between local challenges and the focus of research. For example, Africa's research focuses on poverty, hunger, and gender equality, reflecting its pressing social issues. Europe, with its advanced economic and social development, focuses on education, innovation, and sustainable consumption. These findings suggest that aligning research efforts with local challenges can help in effectively addressing the SDGs.

Bautista-Puig et al. [33] performed a scientometric analysis to assess the integration of SDGs within HEIs and research centers. The study observed an 828% increase in SDG-related research from 2000 to 2017, particularly noting a concentration post-2015, when SDGs were formally launched. HEIs in the U.S., U.K., and Switzerland were highly productive, while certain African and Asian countries exhibited a stronger research specialization in SDGs, showcasing a more targeted focus on development-related issues in these regions. Chapman et al. [34] took a critical perspective and examined the complexities and challenges of assessing academic research impact through the lens of SDGs. The data were collected with nine groups at two conferences, collecting data on how researchers, their institutions, and network organizations can contribute to, and measure, research aligned with the SDGs and targets. Workshop participants emphasized that a crucial first step in embedding SDGs within institutional research agendas is to establish a clear alignment between the two. One recommended approach for achieving this alignment was leveraging institutional communication channels, such as newsletters, to inform staff about the relevance of the SDGs and highlight how ongoing research efforts correspond with these goals. This emphasis on communication underscores participants' beliefs that raising awareness is an essential initial phase in integrating SDGs into institutional research priorities.

In addition to research, universities are also transforming their internal operations to align with SDG principles. Gui et al. [15] illustrate how universities worldwide are implementing sustainability initiatives to reduce their carbon footprint and promote social sustainability on campus. These initiatives range from energy-saving measures and waste management programs to efforts aimed at enhancing inclusivity and diversity within university communities. Moreover, Pietrzak [35] reports that HEIs are increasingly using digital platforms and social media to promote their SDG-related activities, engaging the broader public in their sustainability efforts. However, Steele and Rickards [16] argue that while many universities are committed to sustainability goals, significant barriers remain.

These include resource constraints, institutional inertia, and a lack of integration of the SDGs into leadership and governance structures.

Through a scoping review of the literature on the contribution of universities to the SDGs, Martínez-Virto and Pérez-Eransas [36] (p. 3) argue that “the volume of literature confirms that there is already a broad consensus that the social responsibility of universities towards their community should be the driving force behind their action”. Studies in this area advocate for universities to become actively involved in societal challenges, showcasing a model for addressing social issues through higher education. For instance, Martínez-Virto and Pérez-Eransas [36] investigate the Public University of Navarre’s initiatives to support SDG 1 (End Poverty) and demonstrate how a targeted focus on a single SDG can yield substantial community impact, with the university addressing poverty through partnerships with local NGOs and government programs. Borsatto et al. [37] explored how artificial intelligence (AI) can optimize community outreach efforts in HE to align with SDGs through a case study at a Brazilian university. Besides illustrating the university’s social role and its impact on both local and global well-being, the findings raise the issue of clearer reporting of SDG-aligned activities, which would allow for a more accurate assessment of the university’s community impact. Namely, by 2018, outreach projects showed greater overlap across economic, social, and biosphere dimensions, though it remains unclear if this was due to the projects’ multidisciplinary nature or a lack of clear SDG alignment. López’s [38] study provides a comprehensive analysis of how Spanish universities incorporate social impact into their activities, focusing on SDGs like Quality Education (SDG 4), Health (SDG 3), and Gender Equality (SDG 5). The study brings another perspective by also looking at how universities’ impact on SDGs is reflected in academic rankings, linking university reputation with social responsibility. Findings suggest that the integration of SDG-related outcomes into rankings is a growing trend that may incentivize universities to expand their community and social engagement efforts. The findings indicate that performance on SDG metrics not only enhances university recognition but also has the potential to attract additional resources, highlighting external recognition of social impact as a crucial factor motivating universities to strengthen their outreach initiatives.

Alcántara-Rubio et al.’s [25] findings on institutional management indicate that HEIs largely rely on initiatives from specific groups within the university, rather than on institution-led actions, suggesting a limited sense of institutional responsibility towards the SDG agenda. Studies addressing institutional management are largely declarative and do not reflect actual actions undertaken by HEIs. In addition, a vast majority of the studies originates from the western developed economies (Spain and UK). However, the studies underscore the importance of robust governance frameworks in integrating SDGs within higher education institutions. Effective governance structures, strategic decision-making, and participatory management practices are pivotal for successful SDG alignment. Through formalized governance, transparent reporting, and collaborative partnerships, universities can position themselves as proactive contributors to sustainable development, demonstrating their societal value beyond traditional educational roles.

Furthermore, Leal Filho, Salvia, and Eustachio [7] conducted a cross-country study at 128 higher education institutions in 28 countries which aimed at ascertaining the extent to which the SDGs are being integrated into the strategy of HEIs. The results indicate that while many institutions recognize the importance of sustainable development, the explicit integration of the SDGs into their strategies is less widespread. For example, while 76% of respondents consider sustainable development to be part of their institutional mission, only around 60% have formal strategies or initiatives that specifically address the SDGs. The study also looks at internal factors that affect the integration of the SDGs, such as

the size, structure, and culture of the institution. It shows that organizational changes, such as the establishment of sustainability committees or the introduction of monitoring tools, are crucial for effective implementation of the SDGs. However, only half of the institutions surveyed stated that they had made such changes. The study also identifies key drivers, such as improved reputation and innovation, and barriers, such as limited resources and lack of training, to incorporating the SDGs into higher education strategies. While many universities acknowledge the significance of sustainable development, the explicit integration of SDGs into their strategic operations remains limited. The review of the literature demonstrates the necessity for organizational adjustments, leadership involvement, and external support to effectively embed the SDGs into higher education institutions' strategies.

2.2. SDGs as a Transformative Agenda

The integration of SDGs appears to be on the rise. However, as noted by Franco et al. [39], effectively embedding sustainability in HEIs' policies, curricula, and practices requires strategic support through a coordinated and coherent governance approach. This is consistent with Leal Filho [40], who asserts that the implementation of sustainable development in HEIs must go beyond policy alone. Steele and Rickards [16] take a critical look at how universities can best deal with the problems and opportunities of the SDGs. The authors see universities in a paradoxical role when it comes to enabling or hindering sustainable development. While universities have great potential to transform themselves and make much-needed changes to address global challenges, they are simultaneously embedded in neoliberal frameworks that undermine the progressive goals of the SDGs.

Steele and Rickards [16] develop four plausible scenarios of university engagement with the SDGs in the form of a matrix of institutional engagement, from superficial to profound, and innovation culture, from conventional to bold and ethical, to arrive at four plausible scenarios for university engagement with the SDGs (Figure 1). The SDG framework is seen as a catalyst to rethink the role of higher education in society. Through bold innovation and deep institutional engagement, universities can take a leadership role in sustainability, equality, and equity.

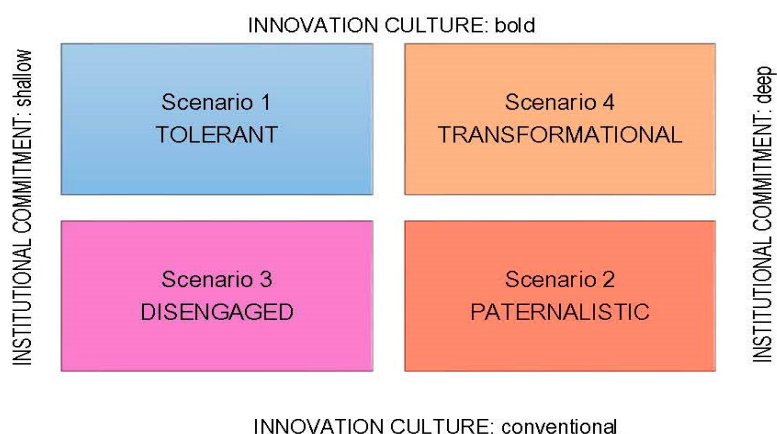


Figure 1. Various scenarios for university engagement with the SDGs.

In the tolerant scenario, universities exhibit a bold culture of innovation but maintain only a superficial institutional commitment to the SDGs. Innovative and transformative projects may emerge, driven by committed individuals or small groups, but these efforts remain isolated and are not systematically supported. The institution as a whole does not prioritize the SDGs, so such initiatives are not aligned with its strategic vision and broader mission. While these efforts may lead to creative solutions, they are unlikely to

have a lasting or far-reaching impact without stronger institutional alignment. The paternalistic scenario reflects a deeper institutional commitment to the SDGs, but the approach to innovation is conventional and hierarchical. Universities in this category embed the SDG agenda into strategic plans, governance structures, and research priorities. However, implementation is top-down, with a focus on compliance and reporting rather than fostering collaboration or grassroots innovation. This structured and bureaucratic approach can improve institutional alignment with the SDGs but often inhibits creativity and limits the transformative potential of the initiatives. The transformative scenario represents the ideal engagement, where universities combine deep institutional commitment with a bold, ethical approach to innovation. Here, the SDGs are embedded in all aspects of the institution, including teaching, research, operations, and partnerships. This holistic integration fosters a dynamic and inclusive culture that enables systemic change within and beyond the college. Institutions in this scenario act as sustainability leaders, leveraging their internal practices and external collaborations to drive meaningful societal and environmental change (model description from [16]).

The authors argue that many universities currently operate in the “disengaged” or “tolerant” scenarios. To shift to a transformative approach, institutions must provide bold leadership, prioritize strategic alignment with the SDGs, and rethink traditional structures and practices. This shift requires embedding the SDGs as a core element of the college mission, promoting systemic and inclusive engagement that is aligned with the global sustainability goals and a shift in focus from competition and short-term gains to a commitment to promoting a sustainable future, empowering communities and addressing global challenges in meaningful and lasting ways.

The discussed literature demonstrates that studies only sporadically analyze the influence of the SDGs in guiding universities towards a deep and profound transformation. Our study addresses this gap and applies the framework developed by Steele and Rickards [16] to evaluate the extent to which SDGs guide transformative changes.

3. The Context

The transformation of higher education in the former transition countries of CEE is a topic of considerable scholarly interest, reflecting the unique challenges and opportunities in these regions. Studies highlight the impact of the region’s socio-economic upheavals and institutional reforms on HEIs and offer valuable insights into their changing role in promoting education, innovation, and regional integration [41]. After the separation from the former Yugoslavia in 1991 and the transition to a market economy, the reorganization of universities was also of crucial importance. In the early 1990s, a university was considered a “free association of faculties and research institutes”, and the faculties were regarded as “completely independent” units [42] (p. 813). Since all decisions were transferred to the faculty level, university governance structures did not have too much power. Šoljan [43] (p. 142) argues that “the individual faculties [acted] as separate parts of a disintegrated university organism”. In 2001, the Republic of Croatia joined the Bologna Process, initiating reforms in higher education that integrated Croatian higher education into the European Higher Education Area. This reform of study programs represents one of the most important changes in the higher education system of the Republic of Croatia. However, the organizational structure has not changed. Vukasović [44] (p. 6) argues that “despite various government attempts and support of transnational organizations for more integration, the Croatian story is marked with significant resistance of the academia, often relying on a rather complex interpretation of university autonomy”.

These overarching challenges within the Croatian higher education system form the framework within which the University of Split operates and reflect both the systemic

obstacles and the local strategies to achieve progress. The UOS, as one of Croatia's leading institutions, provides a lens through which these broader issues can be explored, particularly in terms of its efforts to align with the SDGs within the constraints of a fragmented higher education system. The UOS stands as a compelling example of how a university in a transitional economy can address sustainability goals while contending with historical and structural barriers.

As global awareness of sustainability issues has grown, UOS has begun to recognize both its responsibility to address these challenges and the opportunities emerging from these challenges. However, initial attempts to integrate sustainability into the curriculum, research, community engagement, and university governance were sporadic and lacked systematic planning. The university's fragmented structure further complicated efforts to create a cohesive sustainability framework. Besides the aforementioned challenges resulting from the inherited communist-era educational practices and lack of international orientation, UOS also faced infrastructural limitations in its initial efforts to contribute to the sustainable goals. These were mainly connected to the non-coherent institutional structure and underdeveloped infrastructure.

Having the 17 SDGs established as a framework for achieving a shared goal, it was crucial to identify methods to assess progress toward these goals, which involve both measuring and monitoring their achievement [10]. By 2021, the UOS had made significant progress in its commitment to the Sustainable Development Goals, gaining recognition for its contribution to all 17 goals. This transformation has been additionally facilitated in 2022 by the creation of dedicated teams focused on collecting and reporting data related to the SDGs, which has fostered a collective mindset among faculty and staff. University leadership has recognized the need for transparency and accountability, which has led to the development of new policies aimed at promoting equity and inclusion. It also resulted in the clear presentation of specific activities contributing to the SDGs.

4. Methodology

In order to explore the role and contribution of the SDGs as a transformative framework within the University of Split, Croatia, a qualitative research methodology is applied in this study. Qualitative methods are particularly suitable for researching complex and context-specific phenomena such as the integration of the SDGs in HEIs [45,46]. These methods allow for a deep understanding of participants' perspectives and institutional practices, which is crucial for understanding the multi-layered nature of SDG implementation. By employing qualitative techniques, researchers can uncover the barriers and enablers of SDG integration, providing a comprehensive understanding of how HEIs can navigate these complexities [9].

To ensure the comprehensive collection of data regarding the problem, two key research instruments have been adopted: in-depth interviews with members of the former and current university management team and a systematic review of relevant university documents. However, this study did not include the perspectives of professors, students or external stakeholders, which is a limitation in capturing the full spectrum of views on the integration of the SDGs. The informants were purposefully selected, based on their responsibilities linked to strategic decision-making relevant to the implementation of the SDGs. The interview questions ranged across the following topics: (1) the integration of sustainability principles; (2) specific actions and strategies assumed by the university related to the alignment with SDGs; and (3) challenges and opportunities faced throughout the process. The list of interview questions is available in Appendix A. The interview questions were developed based on a thorough review of the existing literature and frameworks related to the SDGs and HEIs. These questions were then reviewed by three experts in the

field of sustainable development and higher education to ensure that they were relevant, clear, and aligned with the objectives of this study. To further validate the instrument, the interview questions were cross-checked with data from the HEIs' strategy documents and action plans to ensure consistency and alignment with the broader spectrum of institutional commitment to the SDGs. During the data collection phase, minor adjustments were made to the interview guide based on initial feedback from participants to ensure that the questions remained contextually relevant and comprehensive.

This method allowed the researchers to capture detailed narratives and nuanced viewpoints. The data were collected longitudinally, which provided detailed insights into the university's journey and transition over the years. In total, 12 respondents agreed to participate. Participants provided informed consent prior to the interviews, and confidentiality was maintained throughout the research process. The anonymity of respondents (their roles and gender are not disclosed) and sensitive institutional data was ensured during data reporting. The interviews were conducted from May 2021 until July 2024. Each respondent was interviewed on several occasions. The sampling strategy was purposive. Each interview lasted on average 30 min and was conducted in the Croatian language. A systematic review of relevant university documents was conducted to triangulate the findings from the interviews. The documents analyzed are presented in Table 1.

Table 1. Analyzed documents.

Documents	Year of Publication	Page Numbers
Strategic plan 2015–2020 (SP 2015)	October 2015	29
Strategic plan 2021–2025 (SP 2021)	March 2021	49
Scientific strategy 2009–2014 (SS 2009)	June 2009	42
Scientific strategy 2017–2021 (SS 2017)	December 2016	19
Scientific strategy 2022–2026 (SS 2022)	January 2022	16
Action Plan for the Implementation of the University of Split Strategy for 2023	December 2022	85
Action Plan for the Implementation of the University of Split Strategy for 2022	December 2021	34
Action Plan for the Implementation of the University of Split Strategy for 2021	December 2020	39
Action Plans for the Implementation of the University of Split Strategy for 2016, 2017, 2018, 2019, and 2020	Sustainability was not explicitly discussed	/
Anti-Corruption Policy	December 2022	1
Equal Pay Policy	December 2022	1
Policy on Identifying and Engaging Local Stakeholders on the Sustainable Development Goals	December 2022	1
Declaration on Combating Modern Slavery and Human Trafficking	December 2022	1
Statement of Intent: University Without Single-Use Plastics	December 2022	1
Energy Source Diversification Policy	December 2022	1
Policy for Ensuring Conservation, Restoration, and Sustainable Use of Terrestrial Ecosystems Associated with the University of Split	December 2022	1
Policy on Non-Discriminatory Access and Participation	December 2022	2
Policy on Infrastructure Management	December 2022	2
Policy on Hazardous Waste Management	December 2022	2
Policy on Engaging External Service Providers	December 2022	2

The data collected were analyzed using thematic analysis [47], a method that facilitates the identification and interpretation of recurring patterns and themes within qualitative data. Interview transcripts and analyzed documents were reviewed several times to ensure a deep understanding of the data. Data were systematically coded to identify key concepts. All three researchers were involved in coding, to ensure confirmability. Codes were grouped into broader themes reflecting key research objectives, such as “strategic alignment to the SDGs”, “barriers to implementation”, and “impact of the SDGs on institutional change”. The quotes included in the manuscript were selected because they succinctly and effectively reflect the consensus or prevailing trends among the interviewees. This approach was taken to maintain clarity and focus while avoiding redundancy.

5. Findings

The content analysis and the analysis of interviews reveals the significant shift that UOS achieved in a short time span towards the SDG agenda. The themes that emerged from the analysis are outlined as follows: (1) “growing awareness—first steps”, (2) “learning how to navigate”—the strategic adaptation to the SDGs; and (3) “drivers of change”—a shift in strategic planning. The categories resulted from iterative coding and refinement processes in which all three researchers were involved to ensure their consistency. They are based on both the data and the theoretical framework, in particular Steele and Rickards’ model of institutional commitment and innovation culture, which is consistent with the observed development in the case study. We further validated the categories through triangulation, ensuring consistency between interview data, institutional documents, and strategic plans.

5.1. “Growing Awareness”—First Steps

Due to the different and complex developmental path that HEIs from CEE countries had to undergo, UOS’s first task was to understand the broader role of the university in the society. Since the beginning of the 2000, UOS has positioned itself as a key actor in the society which contributes to the socio-economic development and understands the reciprocal connection between the socio-economic progress and knowledge development at the university:

“The university should contribute to economic, social and sustainable development through science, technological progress and innovation. Universities are also responsible for contributing to public goods through progress in the humanities and artistic sciences. Every form of social progress is directly related to the development of science at the university”. (SS, 2009, p. 9)

A former member of the management team reflects on the difficult transition period and the importance of the Bologna reforms to help HEIs from former transition economies to make the necessary shift in their understanding of the role of the university:

“UOS, like other Croatian universities was fragmented, with underdeveloped and outdated infrastructure.. We were lacking a vision.. most of us just delivered teaching, which was not updated to reflect on the most recent issue. It was at the beginning of the 2000., when we engaged in Bologna process.. it really made us think not only about the quality of the study programme, but we started to think about internationalisation, about the world class research. Think more importantly, we started to realise that we are closely integrated into the local community, that we can make an impact and that we have to understand our role with the society as reciprocal”. (FMT 2, 2022)

However, it is also evident that UOS is facing significant challenges in terms of the available resources, inadequate infrastructure, reliance on government funding, and

weak cooperation with the industry and society. While the majority of HEIs in the world already had to restructure in response to rapid globalization and internationalization in the 1990s, UOS, like many other HEIs from former transition countries, did not have the basic resources to respond to those changes. For instance, SS (2009) emphasized the absence of an office for science and technology transfer as extremely problematic, which was reiterated in an interview with FMT 3, 2021:

“We were ready to make substantial changes but we were facing obstacles at all levels. For instance, we did not have office for technology transfer until 2011 I believe, but were complaining how industry is not interested in our innovations. When we made an analysis in terms of scientific productivity, project grants, external funding.. only two Faculties had some success. Even worse, all Croatian universities did not have tradition of development of science, they were exclusively focused on the teaching aspect.. so teaching not grounded in scientific development. . .”.

UOS had to invest considerable resources into infrastructural elements to embrace the sustainability agenda. However, it appears that besides the challenges related to resource scarcity, the cultural shift was the most difficult aspect to deal with. Interviewees emphasize two obstacles. The first was related to the separation of teaching and research, an inherited practice from the time of the communist regime. Although two faculties produced world-leading research which could be directly related to the SDGs, any attempts to incorporate such content into the curriculum were an isolated practice. The second issue was related to the fragmented structure. While many HEIs set energy savings and emission targets, UOS was drastically lagging behind. Compared to western developed countries, where a growing emphasis on sustainability issues is encouraged by a variety of drivers, such as national policy or societal pressure, Croatian national policy just recently embraced issues related to sustainability, while other pressures almost did not exist. The analysis of the documents revealed that sustainable development was listed as a goal, particularly through scientific and technological solutions aimed at improving the quality of life in the local community, and it appeared for the first time in the SS (2009) documents. An analysis of the Action Plan(s) for 2017 documents revealed that the terms “sustainability” and “sustainable development” were not explicitly mentioned. However, the document contained activities that contribute to sustainable development, such as promoting the mobility of researchers, organizing international events, and promoting cooperation with the business sector.

Integrating sustainability as an operational, strategic, and outreach principle at the UOS level is hard to achieve because faculties are autonomous and can set their own agendas. All interviewees, in particular former and current members of the management team, reflect on the disintegration of the UOS, which is presented as an impeding factor for change. An interview with MT 3 (2024) portrays these issues:

“Although sustainability is declared as one of the core principles of UOS strategy and that was particularly evident in strategic documents written immediately after the 2015 when SDGs were set, actual understanding of the implications of such positioning was shallow. . . a colleague of mine once told me that everyone is using those new fancy words but don’t understand the implications. For instance, we only recently introduced the new modules related to the sustainability issues or lifelong learning programmes.. we never thought about the operational aspects, for instance, at my Faculty we planted grass turfs across just recently. Can you imagine? I am wondering about the water consumption, especially in the summer when temperatures hit above 30C”.

In sum, while most of the world's universities were giving growing priority to the challenges of sustainability, UOS had to go one step backwards and define its role within the wider societal framework first. Three factors which significantly jeopardized its engagement with sustainability issues and the SDG agenda are related to the disintegration of the university, lack of resources, and cultural acceptance of the sustainability agenda. However, the attempts did exist at the institutional level but were sporadic and not systematically planned and implemented. There were minor efforts to integrate sustainability across the curriculum, but sustainability as a core strategic principle did not emerge at this stage. This period lasted until 2018, when significant changes took place.

5.2. "Learning How to Navigate"—The Strategic Adaptation to the SDGs

In 2021, the University of Split debuted in the ranking by being listed for 10 of the 17 UN Sustainable Development Goals (SDGs). UOS was the only Croatian university on the list. In 2022, it had extended its recognition to all 17 SDGs and improved on 10 goals compared to the previous year. One notable achievement was its performance on Goal 17, Partnerships for the Goals, where it ranked between 201st and 300th out of 1438 institutions.

This performance initially led to a shift and greater engagement in reporting on the SDGs. The management team (MT 4, 2022) clearly stated that "that every year, UOS must achieve better results.. there are hundreds of universities on the list, when we fight we must win". The Office of Science and Innovation was responsible, among other things, for collecting the data and preparing the application documents for the Impact Ranking. The results of the Impact Ranking prompted the management team to restructure the way UOS collects the data and their overall approach to the ranking (MT 2, 2022):

"We were proud, shocked and worried at the same time when the results came out, because we knew we were in the game, and now we have an explicitly stated goal: we need to improve our position every year. So we decided to make the work around the SDGs a comprehensive UOS effort. We formed teams for each SDG, made up of academics and staff from different faculties and departments. Each team was responsible for collecting data for that SDG across the university. Not only did this help us to collect the best data for each goal, but we also found that after initial resistance, the teams are now enthusiastic about the SDGs".

HSO (2022) further explained the role of these committees and the appointment criteria:

"These committees also promote initiatives that contribute to specific goals and are tasked with preparing reports on the activities carried out within each goal. There are a total of 65 members in these committees, with three to seven members appointed for each specific goal, depending on the number of activities being implemented and the size of the faculty. The criteria for appointing committee members include their participation in relevant activities, publication output and their areas of expertise. All faculties of the University are represented in these committees, which include staff in scientific, teaching, and collaborative roles, as well as lecturers, administrative personnel, and students".

The Head of the Science Office (HSO, 2022) noted that at this point, UOS was already undertaking many activities that contributed to the SDGs, such as the implementation of the service learning module and research projects that directly addressed specific SDGs, "but we did not develop a collective mind-set that this is something to talk about, be proud of and discuss publicly, so a lot of important information remained hidden". UOS leadership also noted that many activities that are considered a regular routine or part of the general culture, such as non-discriminatory behavior, were not institutionalized. MT 2 (2024) reflected on this issue:

“They say there is a gender pay gap. But our salaries are set according to academic position. Salaries for administrative roles are set according to a scale based on qualifications and experience. We have never had a case of a woman being paid less than a man for the same job or position. But we realized that we lose points in the rankings if we do not have such measures, so we had to introduce them”.

In total, nine UOS policies and two declarations were created in December 2022, including the Anti-Corruption Policy, the Equal Pay Policy, the Policy on Identifying and Engaging Local Stakeholders on the Sustainable Development Goals, and the Declaration on Combating Modern Slavery and Human Trafficking. In these documents, UOS positions itself as a leader in promoting transparency and accountability and is actively committed to promoting equality, inclusivity and the protection of human dignity by taking a proactive approach to prevention and problem-solving. This shift is also reflected in UOS’s 2021–2025 strategy, which explicitly integrates sustainable development into its vision and actions, including collaborating on projects that address environmental sustainability and societal challenges, aligning academic research and community initiatives with the United Nations SDGs, and incorporating sustainability principles into study programs and operational practices. The importance of the participation in the ranking was illustrated by MT 1 (2023):

“Sustainability is one of the fundamental principles of the University’s Strategy, and participation in this ranking enables us to continuously monitor our contribution to society, compare and exchange practices with the best universities, and encourage us to work even better”.

The change is also evident in strategic documents. In SS (2022), sustainable development is now highlighted as a key principle, including contributions to global sustainable development goals through scientific research and the sustainable management of research infrastructure. Priority topics incorporate sustainability through sea and water resources; energy, materials, and advanced technologies; and sustainable society and environment.

5.3. “Drivers of Change”—A Shift in Strategic Planning and Culture

UOS celebrated its 50th anniversary in 2024. When planning began in early 2023, a shift in the understanding and acceptance of the SDGs as a pillar of UOS’s development became clearly visible. In addition to focusing on the operational efficiency of the ranking process and achieving the best results, the management team emphasized sustainability as a core strength of UOS. An interview with MT 1 (2023) illustrates this shift:

“Having a positive and meaningful impact on the community is at the core of everything we do at our university. Such results inspire and motivate us to continue to improve conditions for our students and all staff and to be a force for change in our community. This is a testament to the dedication of our staff, students and researchers who have worked tirelessly for years to bring about positive change”.

This change is also reflected in the perception of the rankings achieved. While the management team has set itself the goal of moving up the impact rankings in 2021, the position on the rankings is no longer seen as just a metric that UOS must achieve. Instead, the rankings are seen as a mechanism to help UOS further improve its sustainability efforts:

“Progress in THE Impact Rankings is an incentive for us to further focus the teaching, research and activities of the college and its members on sustainability. In this way, we show that we are involved in local and global activities, promote the development of practical and sustainable solutions, educate new generations of young professionals and scientists and contribute to social and economic change. This must be at the heart of everything we do”. (MT 4, 2024)

In addition, all interviewees reflected on the cultural positioning of the SDGs, which evolved from initial ignorance or skepticism about their purpose to widespread enthusiasm at UOS. The Head of Science Office explained that the teams working on the SDGs are passionate about collecting as much data as possible and actively engaging in all SDG-related activities, such as participating in seminars, workshops or initiatives for the local community. In addition, the leadership team emphasized that the SDG goals support the college's strategic direction, institutional values, and organizational culture and serve as a basis for the creation of action plans, policies, and individual activities.

The SDGs are also recognized as important to students when deciding where and what to study:

“Concern for sustainable development and ethical values is becoming increasingly important for students when choosing their college. We need to ensure that we do not just teach sustainability through one specific module, but implement the sustainability agenda in every module and activity. We also need to become more sustainable in our processes. For example, we are now supporting our departments to switch to green energy sources, along with many other initiatives”. (MT 4, 2023)

In terms of research, the focus at UOS has shifted from simply counting successful grants and collaborations to assessing the broader impact of research activity. Various support offices are now fully operational, including those dealing with project proposals and business support, all of which integrate SDG principles into their activities.

A former member of the management team reflected on this progress:

“A few years ago, these offices were functional, but there was little awareness of their importance. Today they are working at maximum capacity. They not only support academics in applying for funding, but also play an active role in shaping UOS's research strategy, focusing on projects that are geared towards sustainability. These range from addressing cultural heritage issues to developing environmentally friendly building materials”. (FMT 2, 2024)

This shift is also evident in AP (2023). The document highlights the institution's commitment to promoting sustainable practices in various areas, including research, education, infrastructure, and community engagement. In the area of research and innovation, the university focuses on developing strategic research areas that are aligned with SDG9 (Industry, Innovation and Infrastructure) and SDG17 (Partnerships for the Goals). This includes the promotion of cross-disciplinary research centers and the promotion of projects that explicitly contribute to the SDGs. The institution also aims to modernize its teaching and study programs to ensure that they address current challenges and are in line with the principles of sustainable development. Public lectures and monitoring of the study results are planned to further strengthen sustainability education and contribute to SDG 4 (Quality of Education). The university also incorporates sustainability into its operations, e.g., by implementing energy-efficient improvements in student facilities, which is in line with SDG 9. Initiatives to support gender equality, such as the promotion of programs for women in science, are related to SDG5 (Gender Equality). Programs for lifelong learning and socially responsible education are another focus area that underlines the commitment to SDG4.

The findings show that since 2018, UOS has been actively monitoring its activities aligned with the SDGs. Initially, the focus was on capturing these efforts in terms of ranking performance. Now, the significant efforts are undertaken to integrate the SDG principles into strategic planning, teaching, research, and organizational culture. The current management team discussed barriers that may jeopardize this process. Besides the

still slow cultural acceptance and resource constraints, the main barrier is the fragmented model of higher education in Croatia:

“We must continue to drive forward the functional integration of our university; it will improve our efficiency and save many resources. If we want to move forward, we must integrate sustainability principles across our university. Sustainability has to be embedded in everything we do. Functional integration is the only way to make this happen”. (MT 3, 2024)

6. Discussion

This study highlights how the University of Split has evolved its approach to integrating the SDGs into its institutional framework. The results reflect the views of university management and staff directly involved in SDG-related initiatives. The lack of input from other stakeholders, such as students and external community members, is a limitation that may affect the completeness of the results. The UOS has gradually changed the way it supports the SDGs in its policy. These changes are in line with ideas from the academic world about universities as models of good practice. However, the university also faces specific obstacles arising from its location in Croatia and the region, which affect its entire context.

Our findings are consistent with those of [3], who emphasize the crucial role of HEIs in promoting the SDGs through teaching, research, and institutional management. The case of UOS shows that before the SDGs, sustainability was only partially referred to in the documents or discussed. For instance, it is referred to in SS 2009 but not explicitly in other documents. This trend slowly started to change from 2015 onwards, when the initial focus was on compliance and the gradual integration of the SDGs. This is consistent with the early stages reported by Alcántara-Rubio et al. [25]. The university’s strategic adjustment from a superficial commitment to a more structured and holistic approach reflects the path taken by many universities, especially those in emerging economies [7]. The establishment of teams dedicated to each SDG and the integration of sustainability into strategic planning and operations show that something is moving towards the institutionalization of sustainability [48]. However, the initial challenges of fragmented governance, resource scarcity, and cultural resistance echo the barriers identified by other studies [35]. The Impact Rankings represent a realistic and achievable goal for many universities, especially when compared to other rankings that focus on metrics such as research output or Nobel Prize winners, which require long-term efforts [49–51]. Our findings underline the important role of this ranking as a catalyst for this transition. For many HEIs in the former CEE countries, these rankings often serve as an entry point into the ranking landscape, enabling them to take actions that can lead to improved performance over time. For UOS, participation in these rankings initially led to actions based on compliance but later evolved into a mechanism for embedding sustainability across the institution, demonstrating how external pressures can influence internal transformation.

Using Steele and Rickards’ [16] framework of institutional engagement and innovation culture, UOS’s progress can be depicted as moving from a “paternalistic” to a “transformative” scenario. Initially, the university exhibited characteristics of low institutional commitment and conventional innovation, focusing primarily on compliance with SDG-related metrics. This phase was characterized by fragmented initiatives and limited integration of the SDGs into core activities. Over time, UOS demonstrated a deeper institutional commitment by incorporating sustainability into strategic planning, governance, and teaching. The creation of policies such as the Equal Pay Policy and the Anti-Corruption Policy reflect a systematic approach to aligning institutional practices with the SDG principles. In addition,

the active engagement of academic and administrative staff in SDG-related teams indicates a shift towards fostering collaboration and innovation at the grassroots level.

The university's current trajectory is consistent with the "transformative" scenario, characterized by strong institutional commitment and bold innovation. This is evident in its efforts to integrate sustainability into curricula, research, and operations and to position itself as a leader in promoting local and global sustainability. However, some challenges remain, including resource constraints and cultural inertia, particularly with regard to the adoption of corporate sustainability practices. These challenges show that further, targeted efforts are needed to fully realize the potential for systemic improvement. A key issue specific to the Croatian higher education context is the autonomous position of individual faculties. This autonomy often allows faculties to act independently of broader university initiatives, leading to fragmentation that can hinder coherent progress. At the UOS, the attempt to address this issue is embedded in the strategic framework, which emphasizes the need for functional integration across the institution. Functional integration aims to align decision-making processes, resource allocation, and strategic objectives between faculties and the central university body. However, despite these efforts, such integration has not yet been fully achieved. The current model reflects a traditional decentralized structure that, while respecting faculty autonomy, often leads to inefficiencies and the lack of a unified direction, particularly in promoting sustainability and innovation. To overcome these obstacles, UOS must strengthen its commitment to fostering collaboration between faculties and ensure that the strategic vision is adopted at all levels of the institution. Initiatives that emphasize the mutual benefits of integration, such as shared resources, streamlined processes, and coordinated sustainability practices, could serve as catalysts for change.

This manuscript provides a compelling case study of the University of Split's commitment to the SDGs but is not without limitations. The exclusive focus on a single institution raises the question of the transferability of the findings to other universities, especially outside former transition countries. Furthermore, this study focuses on the perspective of university management and leaves out important stakeholders such as students, the wider teaching staff, local communities, and industry partners, whose contributions could provide a more holistic understanding. For future studies, it would be valuable to extend this research to all actors, such as students, researchers, administrators, and local stakeholders, to fully understand the role of the SDGs. In addition, comparative studies across different regions and institutions could provide insights into how contextual factors influence the adoption and implementation of the SDGs.

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Appendix A. Interview Questions

1. Integration of sustainability principles

How does the university define sustainability within its strategic framework?

In your opinion, what role do sustainability principles play in the university's operations, teaching and research?

How are sustainability principles integrated into curriculum design across faculties?

Can you describe specific strategies or policies that support the integration of sustainability principles?

How is sustainability awareness promoted to staff and students?

2. Specific actions and strategies related to alignment with the SDGs

What strategies has the university implemented to align with the UN Sustainable Development Goals (SDGs)?

Are there specific initiatives or projects that directly contribute to the implementation of the SDGs?

How does the university measure its progress in achieving the SDGs?

What role do partnerships (local, national or international) play in supporting the university's alignment with the SDGs?

Can you give examples of research or community engagement projects that are aligned with specific SDGs?

3. Challenges and opportunities that have arisen during the process

What challenges has the university encountered in integrating sustainability and aligning with the SDGs?

How have resource constraints impacted the implementation of sustainability initiatives?

What cultural or institutional barriers have impacted progress towards alignment with the SDGs?

Are there particular opportunities that have arisen from the university's focus on sustainability and the SDGs?

How has the university dealt with resistance or scepticism within the academic community?

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