

## Article

# Strategic Transition to Sustainability: A Cybernetic Model

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**Abstract:** As the importance of the transition to sustainable development is increasingly recognised by individuals, organisations, and society as a whole, there is a growing need to examine its impact at micro-, meso-, and macro-levels. There is an urgent imperative to ensure the sustainability of growing economic inequalities, a degraded environment, and people living in uneven conditions in different societies. The authors, therefore, highlight the strategic role and essential contribution of organisations, and universities/higher education institutions in particular, in achieving sustainable development and the United Nations Sustainable Development Goals (SDGs). Universities/higher education institutions play a key role in fostering entrepreneurship and innovation, and they form the crucial architecture of contemporary practices in national economies and beyond. Policy makers, university/higher education institution governors, managers, and professors shape students and create new social contexts, and these must be oriented towards sustainability. This paper aims to explore the strategic role of organisations, in particular, universities/higher education institutions, as a key link between personal and social responsibility and, thus, as a powerful enabler of sustainable development. The authors examine the strategic transition to sustainability of two higher education institutions, the University of Maribor and the University of Economics—Varna, and conduct a qualitative case study research to develop a cybernetic model of the university's/higher education institution's transition to sustainability, which reflects the organisation's growing commitment to achieving the Sustainability Development Goals. The model includes seven successive stages: pre-awareness, awareness, focusing, implementation, reaching out, transparency and disclosure, and continuous improvement. The study shows that sustainable development, i.e., sustainability governance, management, and operations, are indispensable for implementing the strategic concept of sustainability in an organisation and for achieving the strategic transition to sustainability as explained in the proposed cybernetic model.

**Keywords:** governance; sustainability; sustainable development; SDGs; strategic management; innovation; university; higher education institution



**Citation:** Štrukelj, T.; Dankova, P.; Hrast, N. Strategic Transition to Sustainability: A Cybernetic Model. *Sustainability* **2023**, *15*, 15948. <https://doi.org/10.3390/su152215948>

Academic Editor: Eric C. K. Cheng

Received: 27 September 2023

Revised: 8 November 2023

Accepted: 9 November 2023

Published: 15 November 2023



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## 1. Introduction

In today's complex global environment, organisations are faced with a variety of opportunities and threats. Organisations with a sufficient strategic potential have the ability to innovate entrepreneurially and respond successfully to external business opportunities (in the organisation's environment) with internal capabilities (within the organisation itself) [1,2]. A major challenge facing organizations at present is that, in order to take advantage of external opportunities in the current changing global arena, they need to consider all aspects of sustainability and integrate them into their development definitions, in particular, in their vision, business policies, strategies, structures, and development programmes [3]. The organisation's clearly defined development guidelines form the basis for its operations. If the organisation's development is oriented towards sustainability, we assume that the organisation's operations will also be sustainable [4–7].

In this paper, we look for evidence of the interdependence between the sustainability of the organisation [1] and the interests of its owners/governors as expressed in its vision

and business policy (e.g., mission statement) [4,7]. We suggest that if the values of these key individuals are aligned with sustainability, and if they recognise that caring for the natural environment and society is indeed as important as caring for the business profit [3], we as a human race can take a major step towards a better future for the generations to come. The shift in the interests of owners/managers towards sustainability is reflected in a change in the vision of their organisation and leads to innovations in business policy [7], which justifies innovations in the management of the organisation, thus leading to innovative demands for greater sustainability [5,6].

The integral governance and management models in their process dimension follow a hierarchical sequence. Governance is superior to management. Management must implement the fundamental definitions contained in the organisation's vision, which the authors propose should be oriented towards sustainability. The recognition of the vision results in the mission (activities and importance of these activities in the organisation's environment), the purpose (of existence, development, and operations), and the primary goals, i.e., the business policy, which the authors recommend should also be responsible. A business policy is realised through strategies into which experts propose to weave requirements for sustainability [8]. The sustainable development strategy should not be separate from the organisation's other strategies but integrated into them [9]. In this way, the organisation's resources and operations will also be oriented towards sustainability, i.e., they will be responsible [1,4,10]. Such a normative approach must be adopted constructively and critically to achieve organisational agility [11]. Organisations therefore need to consider a shift in their core values to align with the principles of sustainable development [3,5,8], and they need to recognise the interdependence between their level of sustainability and the governance and management decision-making processes [4,7,11]. In this paper, we explore these issues in a particular type of organisation, usually not-for-profit and often state-owned, namely, higher education institutions.

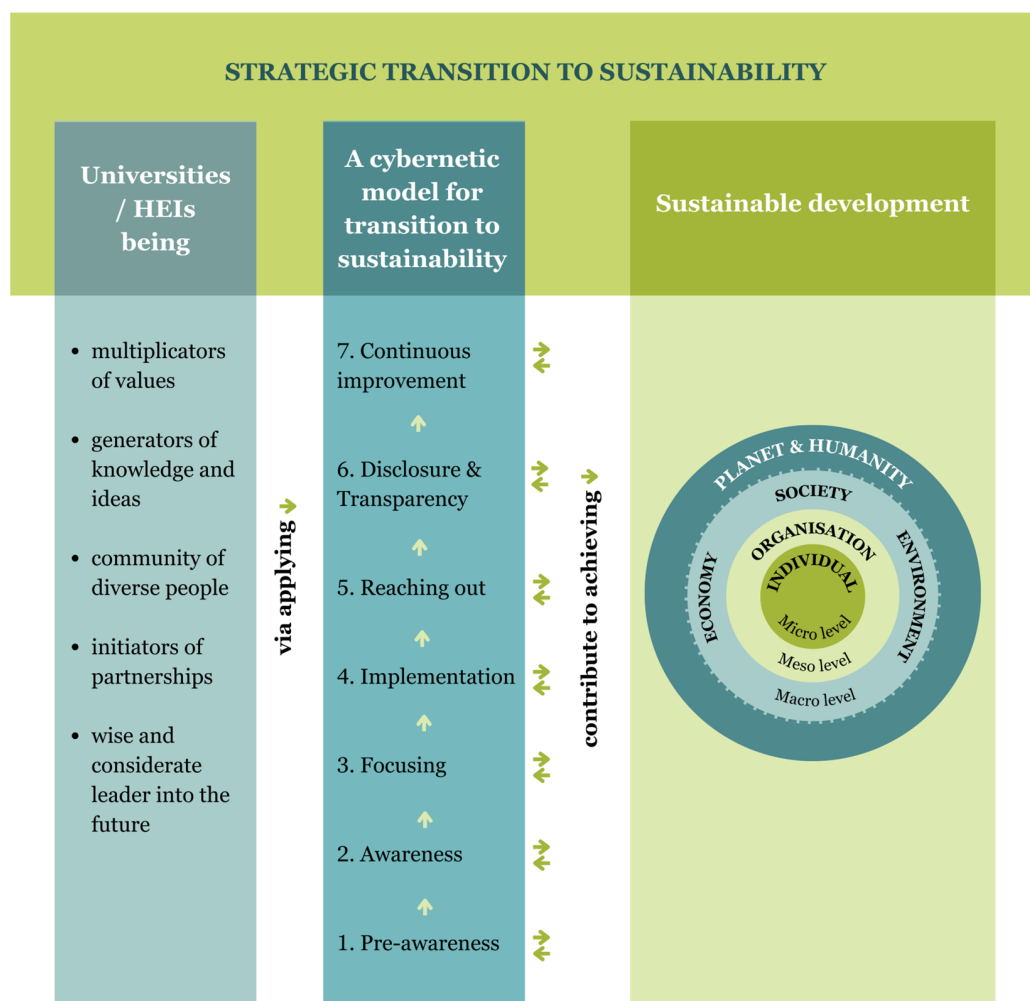
Educational institutions in general and universities/higher education institutions (HEIs) in particular play a central role in achieving sustainable development. Their influence in shaping values and attitudes in societies is undeniable. Education is a powerful means of multiplying values and knowledge, of developing skills and competences needed to achieve the desired changes in people's values, behaviour, and lifestyles, and of encouraging public support for innovation, i.e., the constant and fundamental technological and non-technological changes that are indispensable if humanity is to change the way it has been operating. University/HEI managers are facing several challenges, one of which is to balance internal values with the demands of external stakeholders [12]. However, university/HEI managers are often academics with diverse scientific backgrounds that may lack professional strategic management skills. Universities/HEIs should set an example in achieving sustainable development for other stakeholders to follow. However, the specifics of how a university/HEI can achieve sustainable development are not sufficiently addressed. By exploring the educational institution's path towards sustainable development and proposing a cybernetic model of the university's/HEI's transition to sustainability, this paper aims to fill in this gap.

Therefore, our starting point for this research is the following research question (RQ): are sustainability governance and management, i.e., responsible development requirements, indispensable for implementing the strategic concept of sustainability in a university/higher education institution?

By considering internal capabilities and possibilities and the demands of the environment (external advancement paths), individuals, organisations, and society can achieve technological and non-technological innovations through conscious entrepreneurial behaviour [13]. This paper aims to explore the strategic role of organisations, in particular, universities/HEIs, as a key link between personal and social responsibility and, thus, as a powerful enabler of sustainable development. To help universities/HEIs monitor and continuously improve their progress towards sustainable development, the authors developed a cybernetic model of the university's/HEI's transition to sustainability based

on their research findings and the findings of the dialectical systems theory [14]. The cybernetic model consists of seven consecutive stages corresponding to an institution's growing commitment to achieving the SDGs. The practical application of the cybernetic model envisages ongoing feedback at all stages and requires a system of indicators to help measure the progress towards sustainable development. To respond to this requirement, the authors developed a set of indicative indicators and related questions to identify the organisation's sustainable development level and help it move forward.

In the theoretical chapter, the authors discuss the nature and evolution of the concept of sustainable development, including the United Nations Sustainable Development Goals (SDGs). They also explore the interdependence between integral governance, management and sustainability, and the strategic role of universities/HEIs in achieving sustainable development. The authors then present a bibliometric analysis and the methodological tools used in this research, particularly the case study method. The main findings of the research are explored in detail in the fourth chapter, where the authors examine the role of universities/HEIs and the academic community in achieving sustainable development goals and propose a cybernetic model of the university's/HEI's transition to sustainability. This is followed by a discussion of the information obtained from the research and a confirmation of the scientific thesis established during the research. In the final chapter, the authors summarise their findings and outline priorities for future research. The visual summary in Figure 1 sums up the main findings of this research.



**Figure 1.** Strategic transition to sustainability: visual summary.

## 2. Theoretical Background

### 2.1. Sustainable Development

Throughout human history, there have been many attempts to create social and economic equality and security for members of society. However, despite the many models that humanity has developed in the past, in the modern world, we still face inequality and insecurity, both in society and in the economy [15,16]. Half a century ago, at the 1972 Stockholm Conference on the Environment, a concern was first expressed about “the need for a common vision and common principles to inspire and guide the peoples of the world in preserving and improving the human environment” [17]. This call was, in fact, greatly inspired by the Blue Marble, the first photograph of the entire planet [18].

The concept of sustainable development entered the public domain in 1987 when the World Commission on Environment and Development published the report *Our Common Future*. The report was intended as a “global agenda for change”, and at its core is the sustainability concept, which is expressed as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [19]. Other summits followed over the years, such as the one in Rio de Janeiro in 1992, which defined sustainability as an integrated concept encompassing environmental, economic, and social dimensions.

At the 2012 United Nations Conference on Sustainable Development, the Sustainable Development Goals (SDGs) were first established to provide a global framework for cooperation in addressing the three dimensions of sustainable development within an ethical framework based on (i) the right to development for every country, (ii) human rights and social inclusion, (iii) the convergence of living standards across countries, and (iv) shared responsibilities and opportunities [20]. The UN SDGs (Table 1) reflect the realisation that the world cannot afford to continue on a path of unsustainable growth. The SDGs are part of the United Nations 2030 Agenda, which aims to strengthen peace, end poverty, protect the planet, and ensure prosperity by 2030 [21]. Achieving these goals presents many challenges for our practice [22,23]. As recent studies have shown, globally agreed goals do not easily filter down from the global to the national level [24]. Implementing the SDGs at a local government level also presents challenges [25].

**Table 1.** Overview of the UN Sustainable Development Goals (SDGs) and recommendations for their improvement.

Description of the content of the SDGs	The SDGs reflect social responsibility, the economic needs of humanity, and the foundations for the survival of humanity in modern conditions.
We recommend that a future version of the UN SDGs include a reference to the need to constantly consider the interdependencies of the SDGs (between people/society, planet/environment, and profit/economy). We also recommend that the UN be financially independent of direct or indirect private capital (e.g., from multilateral organisations or the private sector) so that its actions can be as independent and impartial as possible.	
Number of countries that agreed to try to achieve the SDGs	193
We recommend that all the countries in the world try to achieve the SDGs.	
Number and names of goals	Seventeen (no poverty; zero hunger; good health and well-being; quality education; gender equality; clean water and sanitation; affordable and clean energy; decent work and economic growth; industry, innovation, and infrastructure; reduced inequality; sustainable cities and communities; responsible consumption and production; climate action; life below water; life on land; peace, justice, and strong institutions; and partnerships to achieve the goals).

**Table 1.** *Cont.*

For a more holistic approach, we recommend that the United Nations include age equality among individuals in its goals.	
Number of sub-goals	169
Changing the number of goals also requires changing the number of sub-goals.	
Number of indicators	232
Changing the number of sub-goals also requires changing the number of indicators.	
Data source: UN, Transforming Our World: the 2030 Agenda for Sustainable Development [21].	

In recent years, there has been a shift in the literature on corporate governance and sustainability from a more conceptual approach to more strategic and practical research [26,27]. A number of recent studies have found a positive link between organisations' governance and management strategies and their sustainable performance and development [6,28,29]. Adopting sustainable development principles has many positive effects on organisations, including improved organisational efficiency, competitiveness, and reputation [30]. Therefore, in the current global environment, resilient organisations need to adopt sustainable governance, management, and operations [7,26] in order to achieve at least one or as many sustainable development goals as possible and thus improve their chances of success [21,24,30]. To achieve this, they need to acquire the appropriate knowledge [13,27] and focus on innovations [22].

The authors recognise that the organisation is the key link between personal responsibility and social responsibility; thus, it is the key to achieving sustainability. Therefore, the authors propose that, to ensure sustainability, responsible governance and management should be established, and social responsibility and sustainable development should be integrated into the strategic development guidelines of organisations and, thus, into their operations [31].

Achieving sustainable development in an organisation is closely linked to sufficiently comprehensive and integral governance and management, where owners and managers are aware of sustainability issues and where the elements of sustainable development are integrated into the organisation's vision, business policies, core, and other strategies, and their implementation. Therefore, when examining the achievement of sustainable development in an organisation, it is necessary to take as a starting point the individual level (micro-aspect), which, through the organisation (meso-aspect), affects the social, economic, environmental and ecological levels (macroaspect) [7,32], also known as the triple bottom line (TBL) or 3P (people, planet, and profit) concept [33–36]. This is how individual responsibility (micro-level) and, thus, individual competitive advantages can be achieved (as individuals are the organisation's stakeholders), which results in organisational responsibility (meso-level) and thus in organisational competitive advantages, which consequently leads to economic responsibility (macro-level), including social, environmental, and ecological aspects, and thus in competitive advantages for the economy (Figure 2). Achieving global sustainable development, therefore, requires responsible decision-making and responsible behaviour at the micro-, meso-, and macro-levels. Due to limited natural resources, we need all three levels of sustainability if our civilisation is to survive. Governors, managers, and leaders need to integrate social responsibility, environmental protection, and economic benefits into their decision-making practices [37].

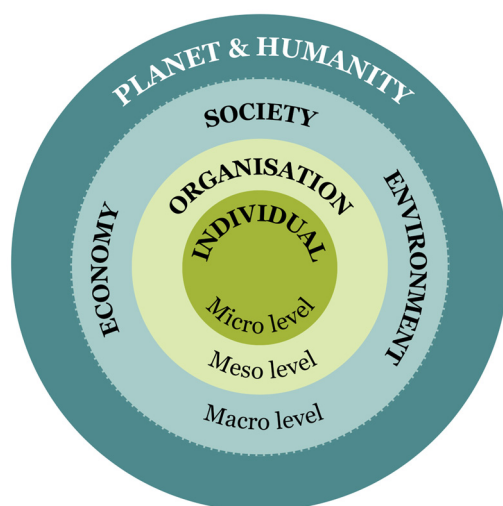
Since individuals and organisations vary in their awareness of the SDGs and their willingness to pursue them, partnerships are crucial to achieving sustainable development through cooperation and innovation, as they can facilitate collective action by providing flexibility and complementarity of knowledge, skills, and actions [38]. Partnerships are also the focus of the 17th SDG: “strengthen the means of implementation and revitalize the global partnership for sustainable development”. The authors highlight three forms of partnerships that can significantly contribute to sustainable development [39]:

- Multi-stakeholder partnerships: particular commitments and contributions to sustainable development agreed by multiple partners who support the transition to



sustainable development in order to achieve the SDGs and/or other agreements on sustainable development;

- Voluntary initiatives: individual voluntary commitments that focus on achieving selected, clearly defined sustainable development outcomes;
- Public–private partnerships: contractual arrangements between public institutions (one or more) and private sector entities (one or more), through which the public and private sectors collaborate and share skills and resources to provide a product and/or service to the general public.



**Figure 2.** Holistic approach to sustainable development.

The authors argue that universities/higher education institutions (HEIs) are in a unique position to be key partners and to lead the implementation of sustainable development goals because they play a central role in fostering innovation, and they have a visible, influential, transformative impact on their environment. Confucius’ view that education is “a means of transformation, discovery of human nature, and cultivation of character” [40] is even more true at present, when, for the sake of future generations, we need a transformation towards sustainable development [41]. Nevertheless, the role of universities/HEIs in creating partnerships for addressing broad social challenges remains under-researched [42]. Universities/HEIs are key members of multi-stakeholder partnerships, and, as part of many universities’/HEIs’ strategic decisions, multi-stakeholder partnerships are central to achieving universities’/HEIs’ sustainable strategic goals. Stakeholders can include academic communities, businesses, civil society, government organisations, the United Nations, and foundations [21].

## 2.2. The Interdependence between Integral Governance, Management, and Sustainability

Integral management models are an extension of strategic management models, emphasising the need for integrity and coherence of the organisation’s development potentials (i.e., the potentials resulting from the interests of the owners, the development possibilities of the environment, and the development capabilities of the organisation, as well as the operational potentials necessary for the implementation of business processes), their horizontal and vertical integration, and a sufficiently holistic approach to the governance and management of the organisation [1,7,10]. The broad, fundamental governance justifications emphasise the essential starting points for the management of the organisation, which are expressed by the people who govern the organisation (owners or authorised governors/managers who represent the owners) through the organisation’s vision and business policy elements (e.g., mission or key objectives). They define why the organisation exists and why it should exist, i.e., they justify its viability and long-term development. To the extent that the key stakeholders have strong moral values and are interested in

the responsible behaviour of their organisation, its vision and business policy (through its mission statement, the definition of its purpose and core goals) provide the consistent basis for the organisation's responsible and sustainable development [31,37,40]. In this way, the foundations are laid for a responsible approach to nature (plants and animals), a careful use of resources, decent treatment of employees and society at large, fair trade, and other aspects of responsible management, i.e., the credibility of the organisation is enhanced [26,27,32]. The owners of the organisation or their authorised representatives, with their ethics and values, are therefore the key foundation of the organisation's responsibility. Governance justifications can therefore be more or less oriented towards responsible behaviour and are the starting point for the organisation's strategic development guidelines in the medium term [7,10].

At the strategic management level, top managers must therefore implement the vision and business policy through appropriate development opportunities—they must ensure the organisation's competitive ability, which should enable the organisation to achieve its targeted performance and success. To achieve this, they need to have a good understanding of the organisation itself (its values, strengths, and weaknesses) and its environment (its opportunities and threats), because the organisation can only be competitive if it matches its strengths with the market opportunities in the environment in which it operates [43]. An organisation is successful in the market when it manages to sell its products and services, i.e., when customers consider what it sells worth buying [7,10]. In response to the demands of customers, (supra)national governments and NGOs, organisations increasingly include in their strategic development guidelines an ethical orientation [8,40] not only towards achieving profits but also towards satisfying the interests of society at large and towards protecting and conserving nature, i.e., the triple bottom line [33–36], which they also achieve through the lens of the SDGs defined by the United Nations [20,21]. Recent studies also show that focusing on sustainable development and adopting differentiation strategies related to sustainability can improve both the non-financial and financial performance of organisations by building a solid reputation and gaining the trust of stakeholders [44,45].

For an organisation to thrive, it must also be efficient (efficiency is achieved in the short term), i.e., it must produce a maximum number of products and/or provide a maximum number of services with minimum inputs, which sets the tactical and operational directions for the production itself or the actual provision of services. Since it is possible to achieve this in a more or less responsible way, the outcomes are also more or less responsible, i.e., oriented towards social (and other) responsibility, environmentally friendly production/service provision, and sustainability [7,10]. The organisation's business model is also closely related to its level of responsibility and can thus affect the achievement of the SDGs, with organisational design and dynamic capabilities being essential drivers of sustainable business model innovations [46,47].

Sustainable development must, therefore, be integrated into all aspects of the organisation's long-, medium-, and short-term development and operations. This integration should be driven by the interests of the owners and implemented by top management with appropriate strategic orientations, with middle and lower management providing optimal resources for an optimal implementation [1,10]. Thus, we do not refer to the organisation's unique sustainability orientation in isolation from the current strategic orientations. Rather, we emphasise the interdependence between the existing (or future) strategic directions and the sustainability aspects, which the organisation attains through sustainable development. This development is directed towards meeting the present generation's needs without compromising future generations' capacities to fulfil their needs [19].

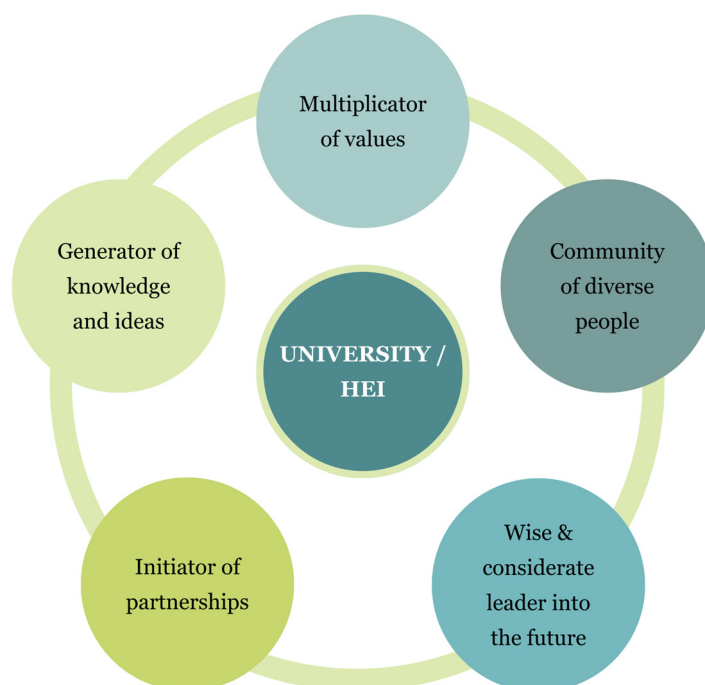
To achieve sustainable development, organisations need to adopt non-technological and technological innovations [14] in all their processes and structures, both in terms of governance and management and in the execution of business operations themselves. This requires adequate information (from the organisation and its environment), an entrepreneurial spirit, appropriate cooperation, and knowledge-sharing between all stakeholders within the organisation (owners, governors, managers, and employees) [48–50].

The key players in the organisation must therefore promote its agility in an ethical way, and this can only be achieved if they are recognised as leaders who the rest of the stakeholders inside and outside the organisation are willing to follow [51–54].

Universities/HEIs are also organisations with varying degrees of responsibility regarding their development and actions, which leads to varying levels of their sustainability impact. Therefore, in the following section, we explore the strategic role of universities/HEIs, which play a central role in the transition to sustainability and can be key partners in achieving the SDGs (goal 17; [21]).

### 2.3. The Strategic Role of Universities/Higher Education Institutions (HEIs) in Transitioning to Sustainability

The key role of universities/HEIs in achieving sustainable development has not been sufficiently explored to date (Figure 3). Sustainable development requires a transformation in the way humanity observes and treats the planet, people, and profits. Over the centuries, universities/HEIs have been the institutions that educate people and form and transform their thinking. The very etymology of the Slavic word “education” (“izobraževanje” in Slovenian, “obrazovanie” in Bulgarian—in the native languages of the authors of this article) means “to give a face, to give a form”. Being influential neutral actors [42], universities/HEIs can be wise, considerate leaders towards the sustainable future that humanity needs. Not only can they be the leaders, but they are called upon to train and nurture “the leaders of the future” [41,55–57]. According to a recent study, competences, such as “interconnected, foresighted, and thinking approaches in system-dynamic contexts” and “recognizing one’s own perspective on a situation and problem, empathizing with other perspectives, and taking these into account when solving problems”, need to be encouraged by universities/HEIs in order to encourage responsible citizenship and sustainable development practices [58]. The key roles of universities/HEIs in achieving sustainable development are illustrated in Figure 3.



**Figure 3.** Key roles of universities/HEIs in achieving sustainable development.

Universities/HEIs are an irreplaceable source of innovation and knowledge in research and education concerning all aspects of the SDGs [42]. In 2020, European Higher Education Area (EHEA) ministers signed the Rome Communiqué, highlighting the key role of higher education in achieving the SDGs [59]. Universities/HEIs are powerful generators of

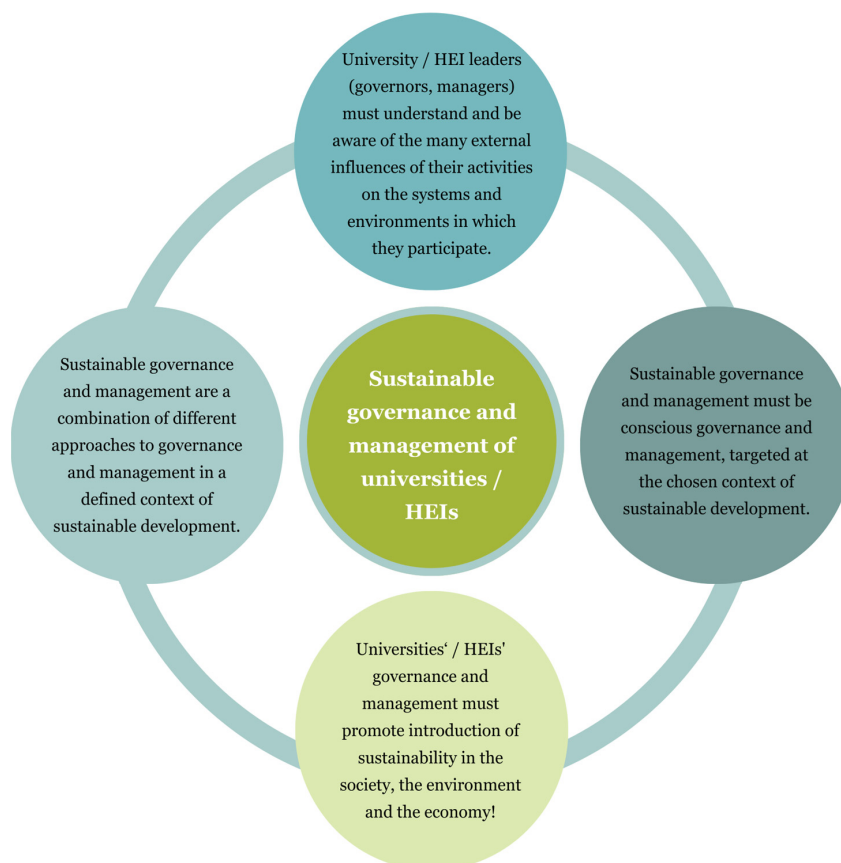


ideas, knowledge, and innovations. As educational institutions, they need to follow the flow of time, constantly improve themselves, meet the environment's expectations, and flexibly respond to the demands of different stakeholders. Through their development and operations, universities/HEIs contribute to recognising and identifying challenges, and through innovative new knowledge and technological and non-technological innovations, they contribute to solving the identified challenges and transferring their knowledge into practice [60].

Recent research has shown that universities/HEIs that focus on social responsibility and green resilience have a better reputation, and that the values, business policies, and strategic directions of many educational institutions are influenced by sustainability and the SDGs [12]. The role of these institutions in transferring green, sustainable values to society—informally through changing the competences of university teachers, administrators, and students, and formally through partnerships with governments or (non-profit and for-profit) organisations—is a key influence on achieving the SDGs [42,58]. The building of competences and partnerships needs to be managed in a way that is consistent with the demands of the business environment [2,61].

Universities/HEIs and academic communities can play a unique role in initiating and building multi-stakeholder partnerships to achieve sustainable development [61]. As humanity must begin to move towards sustainability [57], universities/HEIs are challenged to play a key role in this process. Therefore, universities/HEIs need strong leaders who create visions and strategies for a sustainable common future, know how to connect key areas, engage different stakeholders through educational processes, inspire people, and strengthen communities through adaptation, all to support and meet all the challenges and demands of the present and future.

Universities/HEIs must, therefore, be oriented towards sustainability and hence need sustainable governance and management (Figure 4).



**Figure 4.** Sustainable governance and management of universities/HEIs.

The key role of universities/HEIs in achieving sustainable development implies the importance of integral management and the adoption of a strategic approach to sustainability. That is, it is important that universities/HEIs, like all other for-profit and non-for-profit organisations, apply the knowledge of integral governance and management in their development (long, medium, and short term) and their operations [7,62–64].

Since a sustainable organisation is an organisation that conducts sustainable business [65], the authors drew on the knowledge of integral governance and management [62–64], from which it is evident that governance and management processes are superior to the business process (i.e., the fundamental implementation process), and it is also evident that governance is superior to management. On this basis, the authors formulated the following research thesis (T): in order to justify the strategic concept of the organisation's sustainability, it is crucial that the organisation develops sustainably, whereby this sustainable development results from its responsible governance (responsible business policy) and management, which also applies to universities/higher education institutions.

### 3. Materials and Methods

#### 3.1. Bibliometric Analysis

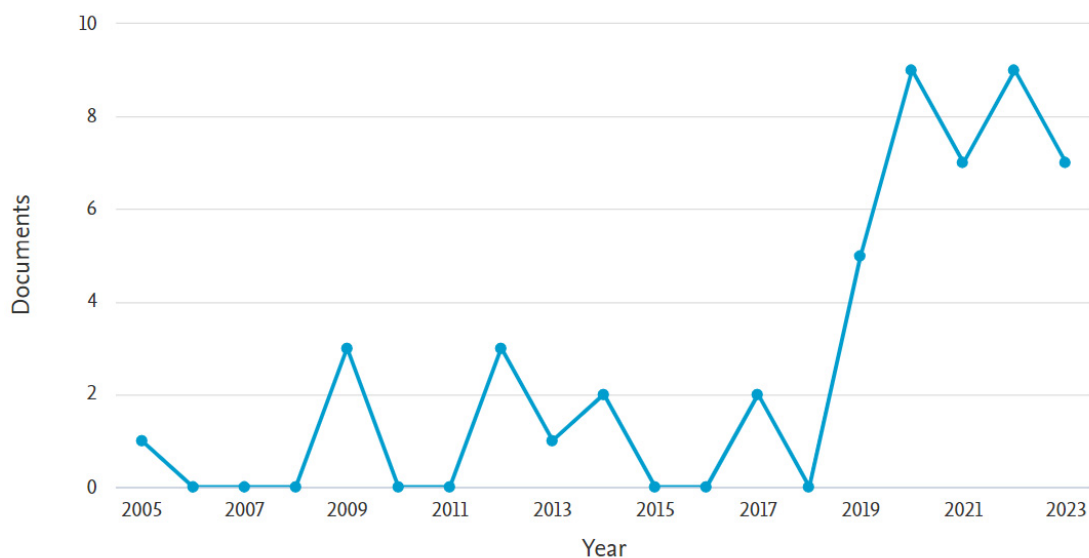
The authors conducted a bibliometric study see, e.g., [66], to determine the extent to which the sustainable development of organisations in general, and of universities/HEIs in particular, was the subject of the research in recent years. The study aimed to identify the number of scientific publications (articles, conference papers, books, and book chapters) in the field, as well as their subject areas and countries of origin. The first part of the bibliometric analysis was based on the data from the Scopus database and was conducted on 31 August 2023. The authors searched titles, abstracts, and publication keywords. The keywords used were “sustainable development of organisations”, “sustainable development of universities”, and “sustainable development of higher education institutions”.

The first article on “sustainable development of organisations” in the Scopus database was published in 1996; however, until 2015, there was negligible research interest on the topic. Only 74 articles have been published to date, of which only 14.6% are in the subject area of Business and Management. The research conducted in the area of Environmental Studies dominates (15.6%), and more than 10% of the publications are in the areas of Energy, Engineering, and Social Sciences.

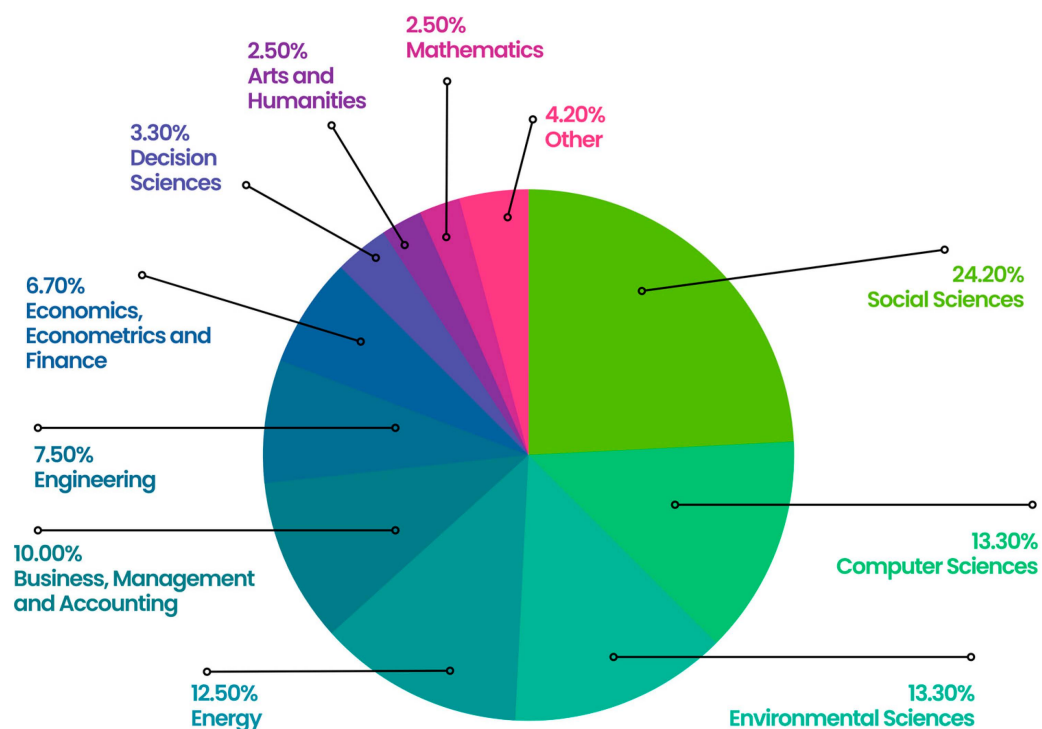
Publications on “sustainable development of universities/HEIs” were also sporadic (Figures 5 and 6). However, since 2019, there has been a growing research interest in this subject, too. To date, there are 52 publications on the sustainable development of universities/HEIs in the Scopus database, but only 10.0% of them are in the subject area of Business and Management. Of these 52 publications, 47 are written in English. The majority of publications in this field are from China (40.4%), followed by the Russian Federation (11.5%) and Taiwan (9.5%). When we searched the titles, abstracts, and publication keywords of the 47 English-language publications, we found that “sustainable development” appeared 23 times and “sustainability” 6 times. The keywords “university sector” and “higher education” appeared ten times each, and the keyword “higher education institution” appeared seven times.

The second part of the bibliometric analysis was based on the data from the Web of Science database and it was conducted on 12 September 2023. The first two articles on “sustainable development of organisations” in the Web of Science database were published in 2008. In 2009, the first article on the “sustainable development of higher education institutions” was published, and in the same year, the first article on the “sustainable development of universities” was also released. The research interest in studying this subject has grown significantly from 2019 onwards. By 12 September 2023, 110 articles were published on this topic. Of these, 28% were published in the subject area of Green Sustainable Science Technology, 24.5% in the area of Environmental Sciences, and 23.6% in the area of Environmental Studies. Eighteen articles were published in the area of Management (16.4%) and 16 articles in the area of Business (14.5%). Only 11 articles (10%)

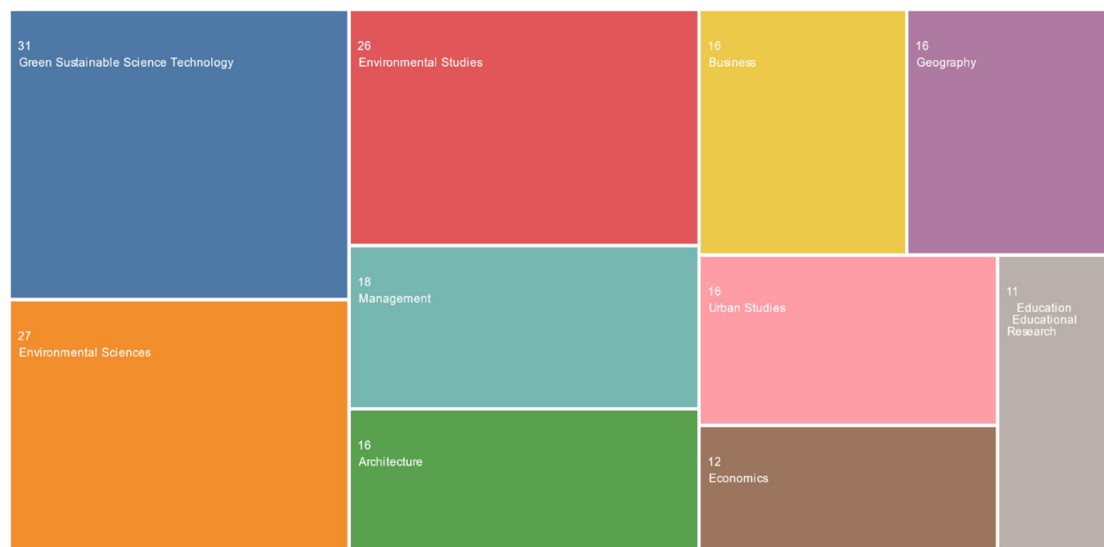
have been published in the area of Education to date (Figure 7). The other research areas represent less than 5% of the research sample. Out of 110 publications, 48 (43.5%) also cover the content of the UN SDGs. Most publications are from China (31), followed by the USA (15), Romania (12), Poland (11), Australia (6), and France (5). Other countries/regions have less than five publications on the subject. To date, there are 37 publications in the Web of Science database on the sustainable development of universities/HEIs, of which 10 articles (27.0%) are in the subject area of Business and Management.



**Figure 5.** The time series of articles published in the Scopus database, 31 August 2023; keywords “sustainable development of universities” or “sustainable development of higher education institutions”.



**Figure 6.** Documents by subject area in the Scopus database, 31 August 2023; keywords “sustainable development of universities” or “sustainable development of higher education institutions”.



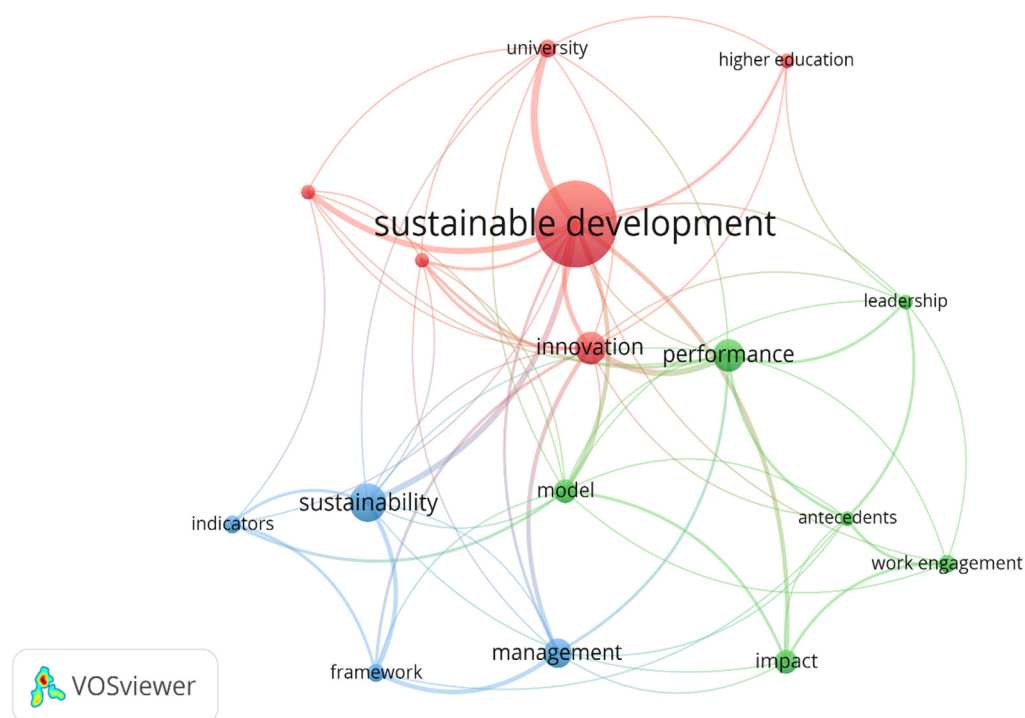
**Figure 7.** Documents by subject area in the Web of Science database, 12 September 2023; keywords “sustainable development of organisations”, “sustainable development of universities”, or “sustainable development of higher education institutions”.

Based on the data from the 110 articles (titles, abstracts, and keywords) retrieved from the Web of Science database on 12 September 2023 with the keywords “sustainable development of organisations”, “sustainable development of universities”, or “sustainable development of higher education institutions”, the authors created a visualised scientific landscape using VOSviewer version 1.6.19, released on 23 January 2023. The authors analysed and visualised different types of bibliometric networks in order to examine the structure of the scientific fields researched. The VOSviewer software is a computer programme that processes the input source files. On the basis of these files, it creates an overview map of the network (bibliometric map). It provides functions for the visualisation (visualisation map) and exploration of the map (map exploration function). Using an optimisation algorithm, VOSviewer offers three different types of maps: network (the visualisation used by the authors in this study), overlay, and density maps.

It was found out that, in all 110 documents included in the bibliometric analysis, the most important keyword was “sustainable development”, which was connected in a cluster with the words “innovation”, “university”, “higher education”, “higher education institutions”, and “strategy”. In the centre of the second cluster was the word “sustainability”, which was closely connected to the first cluster with sustainable development; this cluster also included the words “management”, “framework”, and “indicators”. The third cluster was built around the word “performance”, and it included the words “model”, “impact”, “work engagement”, “leadership”, and “antecedents”. All three clusters were interconnected (Figure 8).

Table 2 compares selected results of the bibliometric analysis based on the data from the Scopus (collected on 31 August 2023) and Web of Science (collected on 12 September 2023) databases.

The bibliometric analysis shows that the topic studied in this paper has recently attracted more research attention, is gaining in importance, and is therefore worth exploring. The bibliometric analysis also reveals that universities/HEIs are still under-researched in regard to their development towards sustainability.



**Figure 8.** Researched field network visualisation.

**Table 2.** Comparison of selected results of the bibliometric analysis.

Searched fields: publication title, abstract, and keywords		
Keywords used: “sustainable development of organisations”, “sustainable development of universities”, and “sustainable development of higher education institutions”		
Selected data	Scopus database	Web of Science database
Number of articles	74	110
Year of publication of the first article on “sustainable development of organisations”	1996	2008
Share of articles in the subject area of Business and Management	14.6%	30.9% (14.5% Business; 16.4% Management)
Share of articles in the subject area of Education	n.a. <sup>1</sup>	10%
Keywords used: “sustainable development of universities” and “sustainable development of higher education institutions”		
Selected data	Scopus database	Web of Science database
Number of articles	52	37
Share of articles in the subject area of Business and Management	10.0%	27.0%

<sup>1</sup> In the Scopus database, there are no data available on the subject area of Education; therefore, the authors assume that Education is included in the subject area Other, which accounts for 4.2%.

### 3.2. Research Approach

In the theoretical part of the research, the authors used different data collection methods. The study and review of the key literature served as a starting point for the qualitative empirical part of the research [67,68], which was conducted through a qualitative case study research of two EU-member state universities from Slovenia and Bulgaria.

In the theoretical part, descriptive methods were used to identify the key contents and to outline the objective facts of the subject under study. The authors divided the concepts using the classification method and compared similar facts from previous research



using the comparative method. By means of the method of induction, the authors drew conclusions about the general validity of the researched aspects from individual facts, and by applying the method of deduction, the authors drew conclusions about individual facts from general positions and general truths. The authors also used the method of comparison to identify similarities or differences when examining the related facts. Using the method of abstraction, the authors eliminated all the non-essential aspects of the previous knowledge studied in the reviewed literature, and following the method of the Dialectical Theory of Systems, the authors observed only the essential aspects of the previous knowledge studied, considering their interdependence and searching for their synergy. In applying the abovementioned research methods, the authors followed the findings of various researchers [69–72].

In the empirical part of the study, the authors used the qualitative case study research method to explore a contemporary phenomenon in depth and in its real-world context [73,74]. This in-depth understanding of the role of universities/HEIs as partners in achieving the SDGs (sustainable development goal 17, called partnerships for the goals, which intended to establish a way to achieve the other goals) was presented through a case study of two selected, typical perspectives of university/HEI governance and management on the sustainable development approach. The case study was conducted at the two universities/HEIs with which the authors of this research are affiliated. Due to their tradition and cultural location in forming social development practices, universities/HEIs, through research and education, form the key architecture of the modern practice of national economies and beyond. Policy makers, university/HEIs governors, managers, and teachers shape the views of students and create new social perspectives. To describe and analyse the cases, the authors employed internal documentation and publicly available data. Pictorial and tabular representations were used to facilitate the understanding of the obtained findings. Our research also followed all the principles of the credibility strategy [32].

In Section 4, the authors adapted Yin’s [74] case study research approach; see also [75,76] (Table 3).

**Table 3.** Case study research approach steps applied.

Step	Yin (2017) [74]	Adaptation within This Research
1	Definition of the case	Definition of the case indispensability
2	Selection of the case(s)	Selection of the case(s)
3	Collection and analysis of data	Collection of data
4	Interpretation of data	Analysis and interpretation of data
5	Reporting findings	Developing a model based on a synergy of findings

The issue of sustainable development has been at the centre of the attention of economically developed countries for several decades. For the purpose of this study, the authors chose to investigate the level of sustainable development of two universities/HEIs located in Slovenia and Bulgaria, two European countries that, until recently, could be described as “countries in transition”. More than thirty years after the beginning of the transition, the economic and social realities in the two countries differ, even if they are both members of the European Union. As educational institutions have a key role to play in changing attitudes and making a real transition to sustainable development, it was of great research interest to the authors to explore the extent to which universities/HEIs in these two countries embarked on the path of sustainable development.

The selection of the cases for the research followed the most obvious criterion: the authors chose the cases of the universities/HEIs with which they were affiliated. Moreover, to the best of the authors’ knowledge, no similar studies on the sustainable development of universities/HEIs have been conducted in Bulgaria, and, in Slovenia, such research is

at an early stage see, e.g., [77,78]. Two of the three authors are professors at each of the universities presented. The third author is a vice-rector for student affairs at one of the studied universities. All three authors have worked for many years on issues of ethics, social responsibility, and sustainability, which they seek to weave into the values of modern society. In addition, the two universities/HEIs selected for this case study research were very suitable due to their different levels of development concerning sustainability. Based on the theoretical background and the two empirical qualitative examples of the presented universities, the authors developed a cybernetic model of the university's/HEI's transition to sustainability.

The authors collected data based on the publicly available and internal data. All the data was carefully collected and any information relevant to this research was extracted. The authors are aware that only properly prepared information could provide a good basis for effective and successful decision making and that measures in universities/HEIs could only achieve their purpose if the right decisions were made. The data collection, which occurred from May to September 2023, formed the basis for the analysis and interpretation of the data, as explained in Section 4 (Results).

#### 4. Results

As a starting point for this research, the authors discuss the indispensability of the strategic development of universities/HEIs towards sustainability. It should be noted that the foundations for the strategic development of universities/HEIs were laid not long ago. Clark [79] identified two approaches in this respect: (i) the complex approach (where a complete study of the future development of the university/HEI was prepared) and (ii) the problematic approach (where the future development of the university/HEI focused on a limited set of alternatives). There are three established models for the governance and (strategic) management of universities/HEIs in the developed Western world: (i) the market model dominates in the USA, (ii) the academic model prevails in the UK and Italy, and (iii) the state or bureaucratic model is dominant in Sweden, Russia, and most EU-member states.

As early as 1972, the Stockholm Declaration called upon educational institutions to include environmental issues in their curricula at all levels of education and in their operations [80]. At present, we define a sustainable and socially responsible university/HEI as one that implements the concepts of sustainable development and social responsibility in its development, operations, educational system, projects, and research activities [56,81].

In line with the key role of universities/HEIs in achieving sustainable development, in October 2022, one of the world's leading providers of insight into the global higher education sector, QS Quacquarelli Symonds, launched the QS World University Rankings: Sustainability 2023. It measures an institution's ability to address the world's greatest environmental, social, and governance (ESG) challenges. The ranking covers two categories, environmental and social impacts, and each category includes multiple performance lenses (Table 4). The third aspect, governance, refers to the institution providing a link to its governance meeting minutes, evidence of student representation on its governing body, and evidence of the establishment of a research ethics committee. For a university to be included in the QS World University Rankings, it must also prove a commitment to mitigating the climate crisis and provide evidence of a research culture aligned with the UN SDGs.

Founded in 1975, the University of Maribor is the second-largest Slovenian university. It has 17 faculties offering 181 study programmes attended by 13,988 students [82]. The University of Economics—Varna is Bulgaria's oldest institution of higher education in business and economics, founded in 1920. At present, it has four faculties, 53 study programmes, and about 7500 students [83].

At the University of Maribor, initiatives for the sustainable operation of the university commenced at the beginning of the 21st century. In the initial period (in 2005), sustainability concepts were included in the Sustainable University Project under the leadership

of Dr Peter Glavič and others [77]. In 2013, the practical implementation of the concepts of sustainable development and social responsibility was officially introduced at the University of Maribor, with the establishment of the Council for Sustainable Development and Social Responsibility and the Commission for Sustainable Development and Social Responsibility. The concepts of sustainable development and social responsibility are also firmly embedded in the University of Maribor 2021–2030 strategy.

**Table 4.** QS World University Rankings: Sustainability 2023.

Category	Performance Lens	Weight
(1) Social impact	Equality	15.0%
	Knowledge exchange	10.0%
	Impact of education	10.0%
	Employability and opportunities	10.0%
	Quality of life	5.0%
(2) Environmental impact	Sustainable institutions	17.5%
	Sustainable education	20.0%
	Sustainable research	12.5%
TOTAL		100.0%

The University of Maribor aims to create a cohesive and innovative higher education space that educates critical, responsible, and active citizens, ensuring academic integrity, quality of education, projects, and research, as well as taking care of the social responsibility and sustainable development of society. These imperatives are included in all ten priority areas of development (Table 5).

**Table 5.** Areas of development included in the 2021–2030 strategy of the University of Maribor.

Highlights from the 2021–2030 Strategy of the University of Maribor	
1. Organisation and connectivity of the university	Social responsibility and sustainable development are included in every area of development that the University of Maribor has included in its 2021–2030 strategy
2. Educational activity	
3. Scientific and artistic activities	
4. Stimulating the working environment	
5. Students	Particular attention is paid to:
6. Internationalisation	
7. Development through the quality system	SDG 4: quality education
8. Involvement of the university in the environment	SDG 9: industry, innovation, and infrastructure
9. Spatial development of the university	SDG 10: reduced inequalities
10. Informational support of university activities	SDG 11: sustainable cities and communities

Data source: University of Maribor [84].

At the University of Economics—Varna, the challenges of sustainable development are not yet the focus of the university’s governance and management. In 2019, a University Development Programme for 2019–2023 was adopted. It included 40 goals in eight priority areas, and specific tasks were formulated to achieve each of the goals. However, none of the goals addressed sustainable development issues. Only in the priority area, “Marketing and Communication”, the goal “Development of a comprehensive marketing concept for the University of Economics—Varna” required the implementation of the task “Developing a concept for the development of a “Green University”” [83]. Evidently, the University of Economics—Varna does not yet have sustainability guidelines in its vision or

mission (governance aspect), or in its strategy or action plan (management aspect). Both the university as a whole and its faculties do not pay sufficient attention to sustainable development, which is why it is necessary to raise awareness at this university about the importance of sustainability governance and management practices and the possible ways to achieve them.

European and Slovenian national guidelines [21,77] stipulate the importance of always considering social responsibility and sustainable development and encourage the transfer of knowledge from academic institutions to their environment. In this regard, the University of Maribor pays particular attention to improving communication with its stakeholders about its various responsible activities, as well as to raising an awareness among its stakeholders about the issues of social responsibility and sustainable development. Since the beginning of 2006, The University of Maribor has been co-organising conferences on social responsibility, which are conducted by the leading Slovenian independent non-profit Institute for the Development of Social Responsibility (in Slovene: Inštitut za Razvoj Družbene Odgovornosti—IRDO). The annual interdisciplinary and sufficiently comprehensive conference entitled “Social responsibility and the challenges of the time” highlights selected topics related to the development of social responsibility; it presents a mosaic of values and knowledge about the impacts of social responsibility on our personal and working lives and the environment [85]. These findings are promoted and presented to various stakeholder groups. The conference is held annually, and members of the University of Maribor, mainly from the Faculty of Economics and Business, have a prominent position in the programme committee. This wide-ranging event significantly contributes to knowledge-sharing, dialogues, and partnership-building between different stakeholders in the fields of social responsibility (SR) and sustainable development (SD). It can rightly be described as an “SR and SD think tank”. The cooperation with the IRDO Institute places the University of Maribor very early, among the pioneers, on the sustainable and responsible map in Slovenia, Europe, and the wider world.

That the University of Maribor is a socially responsible and sustainable institution is evident from the development and current status of its vision and mission (governance aspect), current strategy and action plans (management aspect), and daily operations. For example, within the framework of the Recovery and Resilience Plan of the Republic of Slovenia in 2022–2025 [86], the university is currently implementing 23 pilot projects for Slovenia’s green and resilient transition to Society 5.0. Based on the National Reform Programme for Green, Sustainable, and Digital Transformation, activities are being implemented for curriculum renewal, including environmental and ecological issues, as well as for creating students’ sustainable competences for the contemporary economy and a better society. By developing students’ digital skills, the University of Maribor is leading the progress of competences for a green transition in a wide range of academic and scientific fields. In doing so, it contributes to the achievement of two national strategic goals of sustainable education, namely, (i) that youths and adults are empowered to work and live in a sustainable, environmentally responsible society and to transition to a low-carbon circular economy, and (ii) that environmental literacy is a crucial component of functional literacy.

Every year, the University of Maribor also announces extra-curricular activities for which credit points are awarded. In the new curricula offered for the academic year, 2023/2024, teachers mainly focus on skills for a digital and green present and future, where students can acquire knowledge and competences for sustainable development and a sustainable way of life [87]. When implementing the teaching process, teachers are encouraged to apply modern, innovative teaching methods that are student-cantered, practical, and interactive. The method of implementation must be adapted to the development of attitudes, knowledge, and skills of sustainable values and competences, as defined by the European sustainability competence framework [88]. Through the use of innovative methods, students become critical and systemic thinkers, and the success of their studies and employability in the labour market are also improving. This also contributes to the excellent reputation of the University of Maribor. The Pedagogical Network and the Ser-

vices for Development and Support of Education and Study at the University of Maribor provide support for the integration of a student-centred approach. A wide range of didactic materials is available on the university's website: [didakt.um.si](http://didakt.um.si). The University of Maribor also offers various training programmes that teachers need for a successful implementation. The implementation is followed by an evaluation with a proposal for the upgrading and integration of selected best learning units into the green and digital set of the University of Maribor [89].

At the University of Economics—Varna, sustainable development is not a significant focus of the research interests and priorities of the university's faculty members. In the last ten years, 79 research projects have been launched at the University of Economics, of which only ten are dedicated to sustainable development [90]. At the beginning of 2021, the university's research priorities were updated, adding a new area: green economy and sustainable development. However, this has not led to any increased research interest in this area. Some degree programmes at the University of Economics—Varna include a course on sustainable development issues. However, this is still the exception rather than the rule.

The significant role of the University of Maribor in the creation and dissemination of valuable knowledge and skills is also demonstrated by its inclusion in several prestigious international rankings. It is the only Slovenian university to be included in the Times Impact Ranking 2021 [77], p. 62. In 2022, it was once again listed in the Times Impact Ranking. It was placed in the third quarter of the world's universities, i.e., between 801 and 1000. However, the most prestigious acknowledgement of the University of Maribor's significant contribution to promoting and supporting sustainable development was its recognition as a sustainable university: in the QS World University Rankings, it was placed 401–450 among 700 institutions [91].

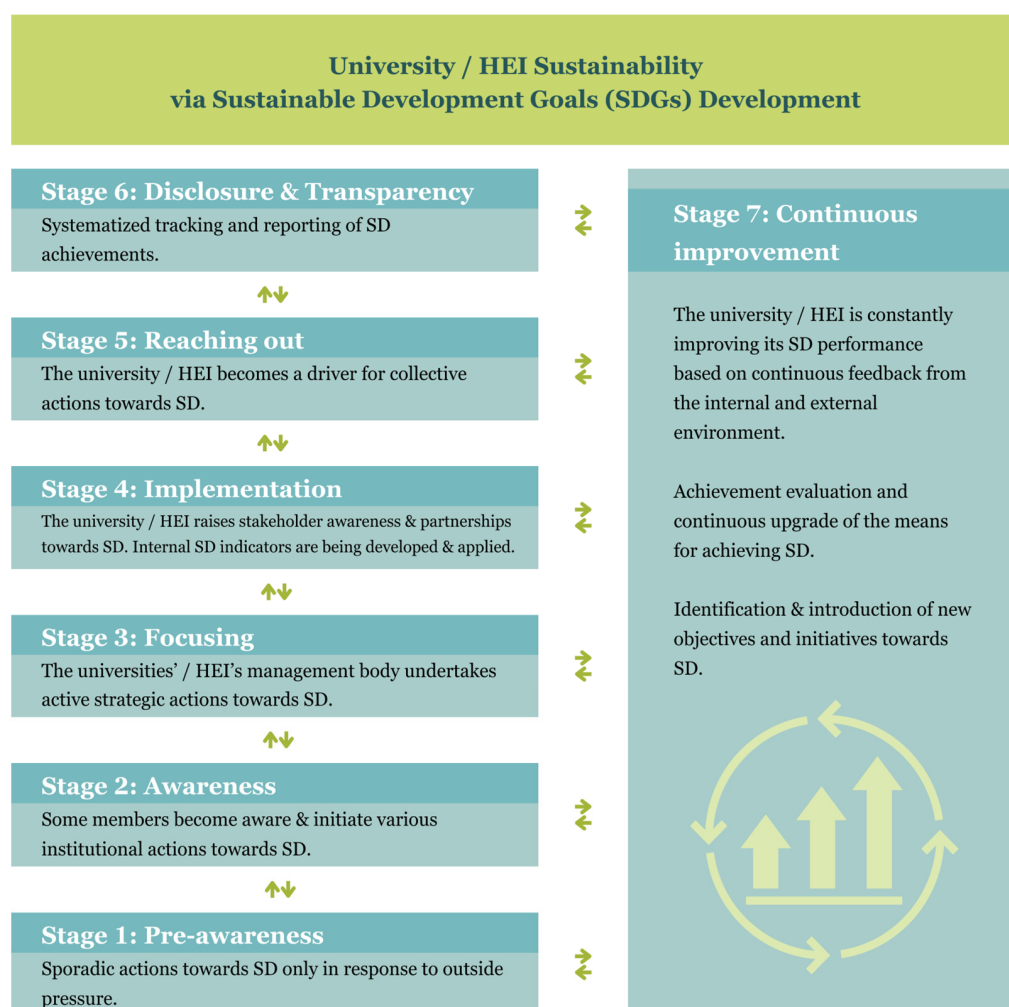
Without internalising sustainable development and socially responsible behaviour, our society will not be able to move forward. This is well recognised by the governance and management of the University of Maribor, which has transformed the university into a sustainable organisation, consciously implementing the strategic concept of sustainability. The university's governance and management are fully aware that the ultimate meaning of sustainable development lies in the fact that we, all together, as a united society, progress in a qualitative, responsible, and successful way. Organisations play a key role in achieving sustainability, influencing the sustainable development and social responsibility of individuals, other organisations, and society as a whole through their governance, management, and strategic development. This role is performed conscientiously and responsibly by the University of Maribor. The university is a commonplace that embraces sustainability and social responsibility in all areas, and educates students and society at large about what it means to be “sustainable and socially responsible”.

The final step in the case study research was devoted to developing a cybernetic model based on the synergy of the findings. In this part of the research, the authors explicitly drew on the postulates of the Dialectical Systems Theory [14,72]. Based on their expertise, the authors selected what they considered to be essential aspects of a university's/HEI's sustainable development, applied their interdependence, and sought a synergistic upgrade of what has been researched to date. Based on the research and case studies discussed, the authors developed a cybernetic model of the university's/HEI's transition to sustainability (Figure 9). The transition to sustainability passes through seven consecutive stages as the university's commitment to sustainable development and achieving the SDGs increases. The specific features of each of the stages are addressed in Section 5.

The developed cybernetic model of the universities'/HEIs' transition to sustainability envisages a cybernetic loop with feedback control information that provides the data necessary to improve the performance at all stages, thus enabling the continuous improvement of the sustainability development and operations of universities/HEIs. The model assumes that the system for introducing and maintaining sustainability is dynamic and can be continuously improved by taking into consideration the feedback information. Changes



in the content of each stage are possible, which in turn lead to changes in all subsequent higher stages. The model thus incorporates features of the control theory—cybernetics—developed by Norbert Wiener in 1948 [92]. The planned circular causal processes enable universities/HEIs that develop and operate sustainably to manage the otherwise complex system of transformation more easily. In this process, diverse and dispersed feedbacks contribute to better communication between the aspects of each stage of sustainable development. Changes in each stage, therefore, help to alter the other stages, simplifying what would otherwise be a considerable and complex transition to sustainability. Universities/HEIs are living, constantly changing organisms, and usually very large systems. Due to the interdependent cooperation of the Rectorate with various faculties, campuses, dormitories, libraries, food services, and others, they form a very complex system, which the framework developed in the model simplifies by predicting various points of possible interventions in the process of achieving sustainable development and continuous improvement. Following the findings of the systems thinking approach, the model foresees sufficiently important stages for sustainable development (i.e., necessary holism) and illustrates their interdependence [14,72].



**Figure 9.** A cybernetic model of the university's/HEI's transition to sustainability.

## 5. Discussion

The research shows that, if we are to achieve sustainable development, we need to be able to reach compromises and agree that the often-conflicting interests of the organisation's various stakeholders are to be realised on an equal footing. Every individual, every organisation, and every economy and society as a whole need to embrace the concept of

sustainability, to internalise it, to live it, and thus make it possible to achieve [44,93,94]. Only in this way will we be able to preserve the natural environment and thus survive as a civilisation.

Universities/HEIs have a crucial role to play in society's efforts to achieve the SDGs. To do so, they need a systematic approach to identify the level of sustainability they have achieved at a given point in time and to outline their path forward [95,96]. As a part of this process, we recommend that universities/HEIs apply the proposed cybernetic model of the university's/HEI's transition to sustainability. The designed model can be easily followed and the organisational development and operating processes can be easily updated due to the built-in cybernetic control system made possible by the cybernetic loop, which together with the built-in systems thinking approach, can lead to the transition of the university/HEI to sustainability [97,98].

The successive stages of the cybernetic model of the university's/HEI's transition to sustainability (Figure 9) are characterised by the following features:

At the pre-awareness (reactive) stage, the university/HEI begins to take some actions towards the SDGs in response to external pressure. The institution only includes the sustainable development goals/directions in its strategic documents that are required by external regulations. At this stage, the concept of sustainable development is not yet internalised by the university/HEI, but is rather imposed by external forces. The institution takes the first steps towards sustainable development not because it wants to, but because it is forced to.

At the awareness stage, some members of the university/HEI (teaching staff, research staff, and managers) become aware of the importance of sustainable development and begin to make efforts to promote actions towards its achievement. They begin to raise sustainable development issues at relevant university/HEI forums, conduct research, and publish papers on sustainable development and include such themes in their teaching to students. Sporadic "green initiatives" may emerge (e.g., building a bird house in the university/HEI courtyard).

At the focusing stage, the university/HEI management body recognises the importance of the SDGs and undertakes planned actions to achieve them. The institution conducts analyses of its external and internal environments to identify and address its weaknesses and threats in relation to the SDGs. The university/HEI begins to consciously and thoughtfully include sustainable development concerns in its strategic documents. Some university/HEI curricula include a course on sustainable development. The number of research projects and publications on sustainable development increases.

At the implementation stage, the university/HEI begins to organise various initiatives (e.g., forums, conferences, and roundtables) on sustainable development. All university/HEI curricula include at least one course on sustainable development. The institution participates in partnerships that address sustainable development problems and their solutions. Internal indicators are developed to measure the achievement of the university's/HEI's sustainable development objectives.

At the reaching out stage, the university/HEI promotes collective action to address sustainable development concerns. The institution itself becomes the initiator and driver of partnerships to address sustainability issues. A specialised person/team/unit is established within the university/HEI to deal with sustainable development issues. The university/HEI is included in prestigious international ratings that address sustainable development. Extracurricular initiatives for students dedicated to the SDGs are launched.

At the disclosure and transparency stage, the university's/HEI's sustainable development objectives and the indicators to track their achievements are systematised. The institution begins to develop and publish a regular sustainable development report, which is made available to internal and external stakeholders.

At the continuous improvement stage, the university/HEI takes ongoing steps to constantly improve its performance towards sustainable development, based on the feedback related to the changes in its internal and external environments. Achievements are being

regularly evaluated, and the means of reaching the key SDGs are being upgraded. New objectives and initiatives towards sustainable development are identified and introduced.

The main aim of this paper is to point out that a just society is only possible if the competitiveness of the economy and the socio-economic trends are oriented towards sustainable development. The often-conflicting interests of individuals, organisations, economies and society as a whole need to be balanced [44,93]. This can be achieved through multi-stakeholder partnerships with good governance and (strategic) management towards sustainability [43,45,46,94].

With the proposed cybernetic model, we indicated a possible means for the implication of innovative entrepreneurial activities for the transition to the sustainability of organisations (meso-level), which was interdependent with the advancement of individuals (micro-level) and impacts on the advancements of society, the economy, and the environment (macro-level). The applied systems approach can help to steer sustainability innovation towards the promotion and evolution of sustainable development. Adopting a more developed level of digital transformation and shifting to the digital environment [76] can accelerate the strategic transition to sustainability, thus enabling economic and social progress. Here, universities/HEIs play a key mediating role, shaping individuals to change the values of organisations and fostering progress at the macro-level. Such entrepreneurial behaviour and sustainable innovation will drive the transition to sustainability. Therefore, this research not only contributes to better shaping the present and future in all aspects of our lives, but also points to the research and action agenda that modern civilisation needs. Furthermore, by establishing a firm link between the strategic transition to sustainability and the United Nations Sustainable Development Goals, we not only illustrated the impact of public policies promoting sustainability, but also, through the example of two selected universities/HEIs, the importance of the seventeenth sustainable development goal—partnership for sustainable development—and its impact on realising a sustainable future (Table 1).

The research presented was based on a qualitative case study and bibliometric methods [66–68,74], and it was limited to a case study research in which the authors were able to demonstrate that, using the example of two public organisations, universities—higher education institutions, a strategic focus on the concept of sustainability was essential for its implementation. Sustainable organisations have a sustainable vision and a sustainable business policy (mission, purpose, and core objectives), and they develop strategically in a sustainable way following sustainable strategies. Using the University of Maribor and the University of Economics—Varna as examples, the authors emphasised the importance of appropriate strategic orientations for organisations aiming to achieve sustainable development.

The University of Maribor included the concept of sustainability in its strategic guidelines, from which it derived its sustainable operations and, thus, its sustainable impacts on individuals, organisations, the economy, and society as a whole. The authors believe that this example could be a model for a shift away from our civilisation's irresponsible, unsustainable reality towards a sustainable future.

The example of the University of Maribor shows an interesting development of the strategic orientation of this university towards sustainability. The beginnings can be traced back to the efforts of individuals who, with the support of the then-rector, began to introduce social responsibility and sustainable development into the governance and management of this organisation (see, e.g., [81]). As the university's awareness of social responsibility and sustainability at that time had not yet reached a sufficient level to have a significant impact on the governance and management of the university, let alone its faculties, these individuals' efforts almost died out after the change in the university's governance and management. Nevertheless, at that time, the university gained an institutional recognition of the importance of social responsibility and sustainable development, which was the first step towards achieving them. An important aspect of the university's progress towards sustainability was also the awareness of certain researchers, especially in

the Faculty of Economics and Business Administration, who, under the leadership of Prof. DDr Matjaž Mulej, performed a qualitative and quantitative research and pedagogical leap in this area during this period and later. Mulej [14,72] is a prominent systems researcher who put the Dialectical Theory of Systems on the world map. His holistic view of ethics, integrity, and the need to consider our interdependence significantly contributed to the level of sustainability development achieved by the University of Maribor.

The seeds of social responsibility and sustainable development flourished following the adoption of the Sustainable Development Goals (SDGs) by the United Nations. In the latter period, the University of Maribor prepared its analysis and selected the goals to focus on (Table 5). In the implementation phase, the university incorporated sustainability into its strategy, and in the action plan, it developed tools for achieving selected key sustainable development goals and a model for assessing its progress. Throughout the whole process of its strategic transition to sustainability, the institution was aware that the strategic process of sustainability required a continuous improvement, a constant commitment to innovation, and an upgrading of ways of achieving sustainability and (existing and new) key goals for sustainable development. The University of Maribor dedicated its expertise and commitment to sustainability, which enabled it to make exceptional achievements. At present, these efforts have resulted in a high ranking in the QS World University Rankings: Sustainability 2023 (Table 4).

The example of the University of Maribor illustrates the importance of two strategic approaches to the transition to sustainability. A bottom-up approach was represented by “brave” pioneers who stood out and steered non-technological innovations in the direction of social responsibility and sustainable development. This approach suggests that, in the long run, it will not achieve its purpose without the support of governance and management. From the research in this case study, we also drew attention to an even more crucial approach, namely, a top-down approach that provided an institutional framework within which individuals could more effectively realise their efforts. These findings support the research thesis of this paper.

The University of Economics—Varna is an example that shows that, despite their strategic role as a possible partner in achieving the SDGs, many universities have not yet risen to this challenge. Such universities/HEIs need to become aware of their crucial position and focus their role in society, more specifically on sustainability and sustainable development. The example of the University of Economics—Varna also illustrates the importance of the two approaches to the transition to sustainability discussed above. In this university, there is no strong bottom-up team of individuals who recognise the need for non-technological innovations towards achieving social responsibility and sustainable development. This university also lacks the governance and management requirements for sustainable development, which (as we found) is even more crucial, which is a top-down approach. As this university does not have a clear institutional framework to guide individuals in their sustainability efforts, these efforts are much less expressed. These findings also support our research thesis.

The bibliometric analysis shows that the subject area of “sustainable development” is connected in a cluster with the subject areas of “innovation”, “university”, “higher education”, “higher education institutions”, and “strategy” (Section 3.1; see Figure 8). Therefore, taking into account the theoretical background and research findings of this study, the authors recommend that universities/HEIs achieve their transition towards sustainable development through innovation, which needs to be included in their strategic orientations. The authors suggest that universities/HEIs should strive to initiate both technological and non-technological innovations [72] to change their orientation towards sustainability, which is in line with the findings of Menter [99], Pohjola et al. [100], and Ji et al. [101].

The orientation towards sustainability must be included in the university’s/HEI’s vision and business policy (e.g., mission and core objectives), in line with the findings of the interdependence between integral governance and management with sustainability

(Section 2.2); sustainability orientations must also be included in the core development and business differentiation strategies [1,7,10,102,103]. As the strategic orientations are the starting point for the university's/HEI's tactical and operational decisions and the implementation of its services, sustainability will be embedded in all the aspects of the university's/HEI's business processes. In this way, universities/HEIs will be encouraged to integrate sustainability into their curricula and into the pedagogical process. Such a non-technological innovation will also contribute to the introduction of technological innovations (i.e., a more economical use of resources).

At the centre of the second cluster of the bibliometric analysis (Section 3.1; see Figure 8) lies the subject area of “sustainability”, which is strongly linked to the abovementioned first cluster (“sustainable development”). This second cluster includes the following subject areas: “management”, “framework”, and “indicators”. From these findings, theoretical background, and research results, it can be concluded that, in order to achieve sustainability, organisations need integral governance and management [1,7,10], which is related to the content of the first cluster, as appropriate strategies cannot exist without integral governance and management. Sustainability must be woven into all the organisation's development definitions and, consequently, into its operations. Derived from the organisation's vision and business policy, the fundamental sustainability requirements must be directed towards its (corporate and business) strategies and reflected in its tactical decisions to ensure the optimal allocation of resources [7,30,50,62]. All this forms the basis for a sustainable performance in the implementation of operational tasks. Such a shift may require many organisational changes to be realised through (non-technological and technological) innovations, which may require changes in the organisational structure (e.g., the establishment of a Chief Innovation Officer position) [47,104]. In order to make the right decisions, key decision makers also need a relevant framework, and for this purpose, the authors developed a cybernetic model of the university's/HEI's transition to sustainability (see Figure 9). In order for a university/HEI to determine the level of sustainability it has achieved, it needs to develop an internal system of indicators that best reflect its specificities [105]. In Table 6, the authors propose some indicative indicators that universities/HEIs can use for this purpose.

The third cluster of the bibliometric analysis (Section 3.1; see Figure 8) is organised around the subject area of “performance”, which is linked to “sustainable development” and “innovation” in the first cluster. This third cluster also includes the subject areas of “model”, “impact”, “work engagement”, “leadership”, and “antecedents”. Performance, which is also closely linked to sustainable development, is therefore influenced by many factors (from cluster 1, we can include innovations and strategies that follow governance and management directions, which are already part of cluster 2; in addition to governance and management, cluster 2 includes the frameworks needed for governance and management and hence strategies, and indicators that help managers to measure the achievements of the goals set in governance, management, and strategies). This is consistent with the findings of many authors who found that sustainability governance and strategic management (albeit facing many challenges) improved the sustainability performance [106–108], including in universities/higher education institutions [105].

The third cluster includes a “model”; according to the authors, a model represents a “framework” (cluster 2) and it is connected to “indicators” (cluster 2). The developed cybernetic model for the university's/HEI's transition to sustainability is presented in Figure 9, Section 4; indicative indicators to determine the level of sustainable development of a university/HEI, which we developed in addition to the model, are shown in Table 6. From cluster 3, it is also visible that leadership and work engagement logically precede (antecedent) performance. Many authors concluded that sustainable management, which recognised the importance of engaged talented employees, promoted strategic flexibility and sustainable business performance [109–111]. Therefore, for the organisation to achieve an adequate performance (defined by its governance, management, and strategies), it needs visionary leaders who, through their leadership, increase the work



engagement of employees, who, together with the managers and thanks to the leaders' encouragement and example, produce an adequate performance, which leads to sustainable development [6,8,37].

**Table 6.** Indicative indicators to determine the level of sustainable development (SD) of a university/HEI.

Nº	Indicator	Questions Related to the Indicator
1	Number of prestigious international ratings that take SD into consideration in which the university/HEI is included	Is the university/HEI included in any (how many) prestigious international ratings that take SD into consideration?
2	Number of awards (e.g., prizes, certificates, and recognitions) related to SD received by the university/HEI from external institutions	Has the university/HEI received any (how many) awards (e.g., prizes, certificates, or recognitions) related to SD from external institutions?
3	Percentage (share) of the university/HEI curricula, which include a course on SD	What percentage of all university/HEI curricula include a course on SD?
4	Number of extracurricular activities dedicated to SD per academic year	How many extracurricular activities dedicated to SD are conducted per academic year?
5	Number of research projects addressing SD per academic year	How many research projects addressing SD are developed at the university/HEI per academic year?
6	Percentage of the research projects addressing SD as a share of all research projects at the university/HEI	What percentage of all university/HEI research projects address SD?
7	Number of academic research publications addressing SD per year	How many academic research publications addressing SD are published by staff affiliated with the university/HEI per year?
8	Percentage of the academic research publications addressing SD as a share of all academic research publications by the university/HEI	What percentage of all academic research publications published by staff affiliated with the university/HEI address SD?
9	Availability of a specialised person/team/unit within the university/HEI to deal with SD issues	Is a specialised person/team/unit established within the university/HEI to deal with SD issues?
10	Availability of a university's/HEI's external and internal environment analyses in relation to SD	Does the university/HEI conduct an analysis of its external and internal environments in relation to SD?
11	Inclusion of SD concerns in the university's/HEI's vision/business policy, e.g., mission statement	Are any SD concerns included in the university's/HEI's vision/business policy, e.g., mission statement?
12	Inclusion of SD objectives in the university's/HEI's strategic documents	Are there any (how many) objectives in the university's/HEI's strategic documents that address SD?
13	Number of indicators to measure the achievements of the university's/HEI's SD objectives	How many indicators has the university/HEI adopted to measure the achievements of its SD objectives?
14	Number of events to raise awareness of SD issues organised annually (e.g., forums, conferences, and roundtables)	How many events to raise and awareness of SD issues (e.g., forums, conferences, and roundtables) does the university/HEI organise annually?
15	Number of existing partnerships dedicated to SD in which the university/HEI participates	How many partnerships dedicated to SD does the university/HEI participate in?
16	Number of partnerships dedicated to SD initiated by the university/HEI	How many partnerships dedicated to SD has the university/HEI initiated?

Universities/HEIs are usually run by academics who are supported by professional offices that provide them with all the information they need to make decisions. However, it should not be overlooked that academics are usually not professional managers, and therefore, the suggestions of this research can be of practical importance to them. In addition, many universities/HEIs are state-owned and are, therefore, directly or indirectly governed by the state in accordance with the state policy, which makes the management of state-owned universities/HEIs even more challenging. The challenges of the governance

and management of universities/HEIs have been studied by many authors, which indicates the importance of this issue [112–114]. All universities/HEIs, regardless of ownership, should follow all the laws of integral management despite their different management structures (consisting of academics), which also applies to the introduction of sustainability in their development definitions and their operations/provision of educational services. The validity of the research thesis is shown in Table 7.

**Table 7.** The studied thesis and an overview of its confirmation.

RQ: Are sustainability governance and management, i.e., responsible development requirements, indispensable for implementing the strategic concept of sustainability in a university/higher education institution?	
T1: In order to justify the strategic concept of the organisation's sustainability, it is crucial that the organisation develops sustainably, whereby this sustainable development results from its responsible governance (responsible business policy) and management, which also applies to universities/higher education institutions	<div>✓</div> <div>Confirmed positively</div>

## 6. Conclusions

As the challenges facing humanity continue to increase, the imperative to meet the United Nations Sustainable Development Goals is becoming ever more pressing. While we have not yet fully recovered from the 2008 global economic crisis, in 2020, we were confronted by a global health crisis, the consequences of which are far from being fully realised, and at present we are already being forced to face international political upheavals and even war on European soil. This obliges us, Europeans and all other people in the developed world, to strengthen our diversity—a resilience that can only be achieved by looking through the prism of sustainable development and the social responsibility woven into it. Organisations, especially those with a greater impact on society, will play a key role in this process. The governance, management, and implementation of business processes need to become more sustainable. Moreover, this has to be categorically based on the changing values of individuals—owners, managers, employees, and all the stakeholders that organisations encounter in their immediate working environment and in their broader, global, social, and ecological environments.

The study conducted by the authors provided a positive answer to the research question: “Are sustainability governance and management, i.e., responsible development requirements, indispensable for implementing the strategic concept of sustainability in a university/higher education institution?”. Although this answer may seem obvious at first glance, especially for experienced professionals or owners/managers of for-profit organisations, this is by no means the case for the managers of universities/HEIs. In fact, universities/HEIs have a long tradition of a specific form of governance and management, especially those that are state-owned, where the state exercises its rights as the owner through governance, only to a limited extent, and expects the university/HEI to follow its indirect justifications, e.g., through the adopted strategy for the development of higher education. For this reason, we believe it is important to devote research to the strategic transition of universities/HEIs towards sustainability. The authors found that, to introduce a strategic concept of organisational sustainability, organisations needed to focus on sustainability and sustainable development goals [21]. A sustainable organisation considers the unique characteristics and features of the individuals (micro-level), organisation (meso-level), and natural environment, economy, and society in which it operates (macro-level) (Figure 2). It has to address all aspects of sustainability and ensure a triple bottom outcome, i.e., triple bottom line [33,35], which applies to both for-profit and not-for-profit organisations, regardless of their specificities. The various forms of partnerships that such organisations establish can significantly contribute to their sustainable development [39]. The authors also found that implementing a strategic approach to organisational sustainability required the sustainable governance of the organisation [1,4,7], which also applied to the universities/HEIs studied [99,112,113].

Based on the principles of integral management [62–64] and the finding that a sustainability-oriented organisation provides for its sustainable development [5,37,65], the authors concluded that, if sustainability is required in governance and management processes, it must also be reflected in the fundamental implementation process (i.e., core business). In the processes of governance and management, governance must lay the foundation for management. Figures 5–8 indicate the ever-increasing importance of sustainability and sustainable development in universities/HEIs. This also applies to the case study results example (Section 4). On this basis, the authors confirmed the research thesis formulated at the beginning of the study (T): In order to justify the strategic concept of the organisation's sustainability, it is crucial that the organisation develops sustainably, whereby this sustainable development results from its responsible governance (responsible business policy) and management, which also applies to universities/higher education institutions.

The research conducted confirmed that the sustainable development of universities/HEIs required, first of all, non-technological innovations (e.g., governance innovations in the vision or mission statement and management innovations in the strategic documents), in order to promote both non-technological (e.g., curricula innovations) and technological (e.g., rational use of “green” resources) innovations. The management of universities/HEIs towards sustainable development can be facilitated by the framework presented in the cybernetic model of the university's/HEI's transition to sustainability, which represents the essence of this research's (Figure 9, Section 4). The proposed circular causal steps towards sustainable development, with multiple, diverse, and dispersed feedbacks, can enable universities/HEIs that develop and operate sustainably to manage the otherwise complex system of transformation more smoothly. Communication feedback, expertise, and commitment are crucial to reaching outstanding achievements, which are easier to attain when considering the evolution and revolution of the operating circumstances, including (i) the organisation's capabilities (internal forces expressed as strengths and weaknesses) and (ii) the possibilities in the environment (external forces expressed as opportunities and threats). In order to determine its level of sustainable development, the university/HEI needs to develop an internal system of indicators that best reflect its specificities (some examples can be found in Table 6, Section 5). We found that universities/HEIs committed to sustainable development were characterised by a better performance and reputation. This was particularly the case when they had visionary leaders who were able to increase their employees' engagement (teachers, researchers, and professional staff). Although the authors developed the proposed cybernetic model of strategic transition to sustainability based on the cases and experiences of universities/HEIs, they recommended that any organisation, regardless of its ownership structure, (non-)for-profit orientation or other characteristics, should use the model for a strategic transition to sustainability.

The authors found that, in order to justify the strategic concept of the organisation's sustainability, it was crucial that the organisation developed sustainably, with this sustainable development resulting from its responsible governance (responsible business policy, e.g., mission and core objectives), which confirmed the thesis formulated at the beginning of this study. The models of integral management [1,62–64] show that governance is superior to management, and both are superior to the underlying operational process. Therefore, if the owners (who govern the organisation) guide the organisation in a sustainable way, then managers need to lead it in a sustainable way, and employees need to work in a sustainable way [1,5,7,115]. Therefore, to implement the concept of sustainability, we need sustainable organisations committed to sustainable development with a sustainable vision, mission, purpose, (core) objectives, strategic guidelines, and strategies. Various forms of partnership make this easier to achieve, as indicated by the 17th Sustainable Development Goal of the United Nations (UN SDG) [21]. In this study, the authors highlighted the key role of the university/HEI as an indispensable partner in achieving sustainable development (Figures 3 and 4), based on the examples of the University of Maribor (Table 5) and the University of Economics—Varna. All the development definitions of every organisation are reflected in its operations in the core implementation process and thus directly impact the

economy, natural environment, and society in which the organisation operates (Figure 2). Such a purposeful governance and management innovation are highly entrepreneurial and must be supported by digital transformations (see, e.g., [36,76,99]).

The authors suggest that future research should explore other types of organisations and their particular roles in partnerships addressing sustainable development issues, including the different forms of partnerships. It would also be valuable to examine the views of different stakeholder groups on the different forms of partnerships. The authors also propose to quantitatively investigate the research question of whether the governance and management of an organisation oriented towards social responsibility and sustainable development is a key starting point for the organisation's sustainable business and, thus, for the realisation of the organisation's strategic concept of sustainability. Irrespective of possible future research, based on this study, the authors can confirm that the sustainability-oriented values and interests of the organisation's owners (through the organisation's vision and business policy) have a positive influence on the organisation's sustainability-oriented development guidelines (through the organisation's strategies and structures), and the latter, in turn, positively affect the organisation's sustainability-oriented operations. If humanity is to achieve sustainability in the existing global economy, it is important to focus on the sustainability of each individual, each organisation, and each economy. The authors also highlighted the value of partnerships in achieving the goals of sustainable development and business goals, particularly for universities/HEIs, to which the authors limited this study.

This research also had some other limitations. The authors conducted qualitative research on the strategic transition of universities/HEIs towards sustainable development through the prism of the UN Sustainable Development Goals. Sustainable development can be addressed with innovations in governance and management requirements. Each organisation can define, measure, and analyse its sustainability performance through different, subjectively chosen sustainability indicators. Therefore, we limited the theoretical background to the study of sustainable development; the interdependence between integral governance, management, and sustainability; and identifying the strategic role of universities/HEIs in the transition to sustainability.

The qualitative research methods used were complemented by a bibliometric analysis, where the authors limited the study to the Scopus and Web of Science databases. The search in these databases was limited to the publications' title, abstract, and keywords. The keywords used were limited to "sustainable development of organisations", "sustainable development of universities", and "sustainable development of higher education institutions". The authors also limited the empirical research to the case study method (see Table 3). The cases selected were two universities from two European Union countries, which are still transitioning to a fully market economy. Despite all these limitations, the research comprehensively addressed the problem under study, resulting in a number of findings.

It can be concluded that sustainability must be a priority at the individual (micro), organisational (meso), and societal (macro) levels towards achieving economic, environmental, and societal well-being so that the planet and humanity can survive. Therefore, our implications are directed at all three levels of sustainability.

- (1) At the micro-level, each individual needs to be aware of the need for change. We cannot deny that, for far too long, we have treated natural resources carelessly and cannot afford to waste any more resources. That is why degrowth and the immediate responsibility of each individual are necessary. Everyone is equally and personally responsible, regardless of wealth, income, lifestyle, etc. Everyone must contribute to sustainability according to their capacity, whether as a family member, employee, business owner, economic policy maker, or in any other role. Only through our collective efforts can we create the change necessary for our survival.
- (2) At the meso-level, every for-profit or non-for-profit organisation, private or state-owned, must orient its governance, management, and operations towards sustainable

development. As the research results show, this is also crucial for universities/HEIs, which can be important partners in promoting sustainability and sustainable development in partner organisations, either directly through their activities or indirectly by influencing the values of students, who will later influence the organisations in which they are employed. The orientation of every organisation must not only focus on profit, but also on the natural environment and society. We recommend that organisations adopt the cybernetic model of (university/HEI) transition to sustainability developed in this study.

- (3) At the macro-level, local, regional, national, or supranational/global policymakers must recognise that they have an essential role to play in developing the sustainability pre-awareness of individuals and organisations. They have the power and leverage to establish personal and institutional sustainability actions based on their macro (“external”)-pressure. In this way, they can increase the awareness of individuals (micro-level) and organisations (meso-level).

**Author Contributions:** All authors were involved in all parts of paper writing. All authors wrote, revised, and approved the manuscript. Conceptualisation: T.Š. and N.H.; literature review: T.Š. and P.D.; research model: T.Š. and N.H.; hypotheses: T.Š. and P.D.; methodology: T.Š. and N.H.; research results and analysis: T.Š. and P.D.; discussion: T.Š., N.H. and P.D.; conclusions and further research recommendations: T.Š., N.H. and P.D.; formation: T.Š., N.H. and P.D.; overview: T.Š. and P.D. First author: T.Š. Second author: P.D. Third author: N.H. Leading author: N.H. All authors have read and agreed to the published version of the manuscript.

**Funding:** The first author acknowledges the financial support received from the Slovenian Research Agency (research core funding No. P5-0023, “Entrepreneurship for Innovative Society”).

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author.

**Acknowledgments:** The authors thank the editors and anonymous reviewers for their guiding comments and suggestions for improving the article.

**Conflicts of Interest:** The authors declare no conflict of interest.

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