

Challenges of Organizations in the Approach to Sustainable Development

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Abstract. *Sustainability is far from a new concept. This paper conducts fundamental research by using the Harzing Publish or Perish software, 941 articles are extracted from the Google Scholar platform. The articles have as their main topic sustainable development and were published between 2000 and 2023. Using VOSviewer, the complex connections between the topics addressed by researchers, universities, author affiliation and other elements involved in sustainable development are highlighted. The obtained results show that the field of sustainability is of interest for research, with the number of publications increasing during the analyzed period, with some fluctuations. The keywords analyzed show that education, economic growth, and climate action are among the most used and require further attention in the future. The limitations of the paper refer to the use of a single database. Future research will also address other databases.*

Keywords: sustainability, sustainable development, ecosystem, strategy, research, VOSviewer, economic growth

Introduction

Sustainability is not a new concept. It is approached by more and more organizations. Many years ago, this concept was incompletely addressed, being only a necessity of the business environment. Currently, companies observe the benefits brought by this concept and implement the principles and achieve the global objectives willingly. There are certain European directives that oblige large organizations, with over 500 employees, to report non-financial sustainability. However, many companies fully approach this concept and develop annual sustainability reports that contribute to the efficiency of organizational resources (Ivascu et al., 2019).

Sustainability can benefit humanity in both the short and long term, as it can mean the conservation of natural resources, which are often not sustainable, and on top of that, harm the environment. Thus, the term "sustainable development" has been officially defined as: meeting the needs of the present without compromising the ability of future generations to meet their own needs. The three key responsibilities of sustainable development can be ranked in the following order of importance: environmental conservation, economic development, and social responsibility (Bratianu & Vasilache, 2010). Making good choices to help the environment can seem like a daunting task, but there are lots of simple, small things that can be done to make a positive impact (Dumitrescu et al., 2018).

The paper is structured in 2 parts. The first part presents the implications of the concept of sustainability, and the second the results of the performed analysis. The work ends with conclusions.

The relationship between human activities and ecosystems is not recent, it was always present in Greek and Roman philosophy. But only in the second half of the century XX, when

he found the beginning of the systematic answer, at last there is the complete translation of the development. sustainable, gradually built during the last 3 decades of the century.

In 1951, IUCN (International Union for Nature Conservation) publishes the first report of a State regarding the global environment looking for a reconciliation between economy and ecology. The year 1960 has a significant value with the sad observation that economic activities have negative impact on the environment (degradation, factory smoke, river pollution, etc.), the Club Romei denounces in 1970 (stopping production), the danger of the exponential economic and demographic growth from the point of view of resource depletion (energy, water, lands), pollution and the end of exploitation of the natural system.

The United Nations Conference on the Human Environment in Stockholm (1972), introduces a new model of economic growth, compatible with social justice and respect for the environment.

In 1987, the WCED (World Commission on Environment and Development) led by Gro Harlem BRUNDTLAND, publishes the report "Our Common Future" which launches the concept of sustainable development (Commission of Nations United for the Environment and Development., 2002). In 1987 a Norwegian - Madame Brundtland - spoke for the first time United Nations on sustainable development, using an Anglo-Saxon term "Sustainable development", i.e. sustainable development, sustainable development "that can be sustained", development that allows managing the future. Currently, the notion of corporate social development is used. It is the most recent expression of an ethic very old, involving people's relationships with the environment, and responsibilities of current generations versus future generations.

There are three sustainability responsibilities that companies, universities, and society can follow to become more responsible and help us lead healthy lives (Ivascu & Cioca, 2019).

The first refers to environmental protection and involves reducing the carbon footprint of all areas, managing water resources more carefully and developing solutions that can allow us to generate new reserves of drinking water for vulnerable areas (Sarfraz et al., 2022).

Social responsibility is the second responsibility of sustainability and refers to the way a company treats its own employees, but also shareholders or collaborators. As for employees, they can enjoy several benefits, such as maternity and paternity leaves, learning opportunities to acquire new knowledge or benefit from a flexible schedule (Sarfraz et al., 2022).

Thirdly, if properly implemented, sustainability can also improve aspects related to economic development, both for a company or university and for a local community or a country (Cassingena-Harper, 2003; Sarfraz et al., 2022).

Methodology

The current study is based on fundamental research, the data being obtained with the help of the Harzing Publish or Perish software, facilitating the extraction of information from the Google Scholar platform.

Articles were selected based on a main criterion of having the term "university or education" in the research approach, and we found 941 relevant articles published between 2000 and 2023, identified in the Google Scholar database. To achieve the proposed objective,

research was carried out to provide a detailed analysis, both from a quantitative and qualitative perspective, of the results obtained. The research was carried out in two stages.

In the first stage, articles from the Google Scholar database were collected, with the help of the Harzing Publish or Perish tool, identifying a series of 941 articles in the field of sustainable development, published between 2000 and 2023, and then a quantitative analysis was carried out and quality of previously obtained results. This review includes citation analysis and keyword occurrence analysis of literature related to the topic of sustainability.

In the second step, with the help of the Harzing Publish or Perish tool and the VOSviewer, the complex connections between the themes addressed by researchers, researchers, universities, author affiliation and other elements involved in sustainable development are highlighted.

Achieving sustainability involves strategies for the sustainable development of the planet, ecologically protected, of the population, effectively educated, and of economic production, managed managerially, under conditions specific to the knowledge-based information society, able to create added value in an innovative and regenerative context.

Education for sustainability fulfills an important role in the sustainable development of nature, man and society, under conditions of balanced distribution of all existing/available resources and formative and civic cultivation of an authentic, intragenerational and intergenerational social equity.

In the last part of the research, I also analyzed the involvement of education in overall sustainability. Universities are meant to create alliances promoting values and taking into account the three pillars of sustainable development.

The paper aims to answer 2 questions:

1. *Is the concept of sustainability addressed by companies?*
2. *Does the concept of sustainability present new research directions?*

3. Evaluation of articles

3.1 Analysis of articles

To obtain a database, the Google Scholar database was used. The table below summarizes the data search source and the criteria used. The first publication indexed is a publication from the year 2000, where the author's approach is generally effective in exposing some of the central dilemmas and issues of sustainable development (Cassingena-Harper, 2013; Ivascu et al., 2015; Sarfraz et al., 2021).

Table 1. The evolution of the number of publications on sustainable development, in the period 2000-2023

Year	Number of publications/authors	% of 941
2000	29 K. GRIFFITH	3%
2001	22 B. COUNTRY, W. ORDINANCE	3.2%
2002	28 S. EQUITY	3.3%
2003	31 E. RATE	3.3%

Year	Number of publications/authors	% of 941
2004	30 M. JACOBS	3.3%
2005	33 NGO SUSTAINABILITY	3.4%
2006	38 SE. JORGENSEN	3.6%
2007	33 JLL	3.4%
2008	39 B. DAM, RP GRIESSEN, W. LOHSTROH	3%
2009	35 H. KLEE	3.4%
2010	34 A. BADESCH, M. BOEGNER	3.62%
2011	82 RB RUSSELL	4.20%
2012	45 A. AMICI, E. BECCHIO	4%
2013	46 L. LEAF	4%
2014	34 ADP SUSTAINABILITY	3%
2015	36 R. BASED, J. DEWULF	3.4%
2016	32 Q FACTS, GP SAFETY	3.4%
2017	34 EN STONE, E. PE, JR. YOST	3.4%
2018	32 V. VASQUEZ, L. DIAZ	3.4%
2019	88 C. RODSETH, BN	14.5%
2020	35 S. LEEDAHL, M. BRASHER, A. COSMINA	3.40%
2021	26 AE. KARIMAA, T. LONG	3.39%
2022	21 Y LIAO, Y. XIAO, B. ZHANG	3.39%
2023	78 H. SHERMAN, SM. YAP	10%
TOTAL	941	100%

Source: Authors' own research.

3.2 Bibliometric analysis of co-authors

The collaboration between several authors in carrying out academic research from all regions of the world and which involved balancing the complex relationships between current economic, environmental, and social needs bring great complexity to the researched topics regarding the joint contribution of the expertise of several specialists.

VOSviewer is used to create a network where each node indicates the number of published articles.

Following the network analysis, more than 50 authors were found, grouped in 17 clusters. Each cluster, being represented by a different color, Figure 1. Each node in the cluster is weighted according to the number of articles co-cited by authors in the cluster.

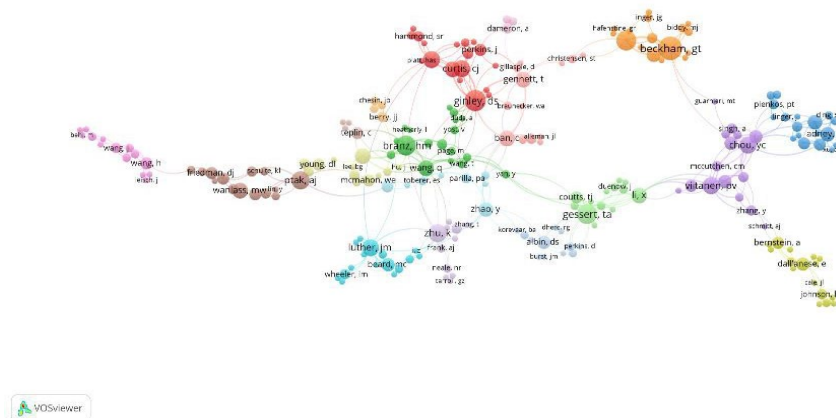


Figure 1. Co-authors grouped on several clusters

Source: Authors' own research.

3.3 Bibliometric analysis of keywords

The reference sphere used globally aims at the informatization process of the knowledge-based society, which can lead to the consolidation of a model of sustainable development. The advantages and limits or challenges are reflected by all the processes involved in sustainable development.

The present article on the topic of sustainable development aims to bring general information related to bibliometric analysis of keywords, forming networks between them, which help group publications have common research objectives. To create these networks, the VOSviewer program was used, which generated the keyword network, based on the frequency of their appearance in the publications from the analyzed database, Figure 2.

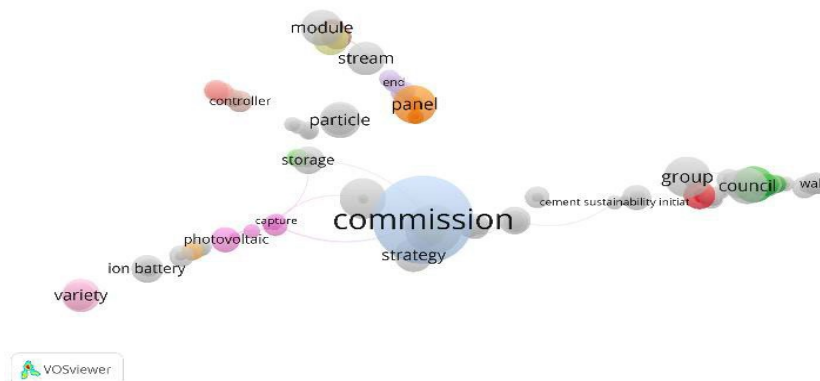


Figure 2. Keyword analysis

Source: Authors' own research.

Following this analysis, 1051 terms and 53 clusters were identified. In the first 10 clusters we find between 29 and 38 keywords, for example: natural resources management, investment

generation, education, commission, culture, green innovation, sustainable way, strategy, controller, network, group, particle, variety.

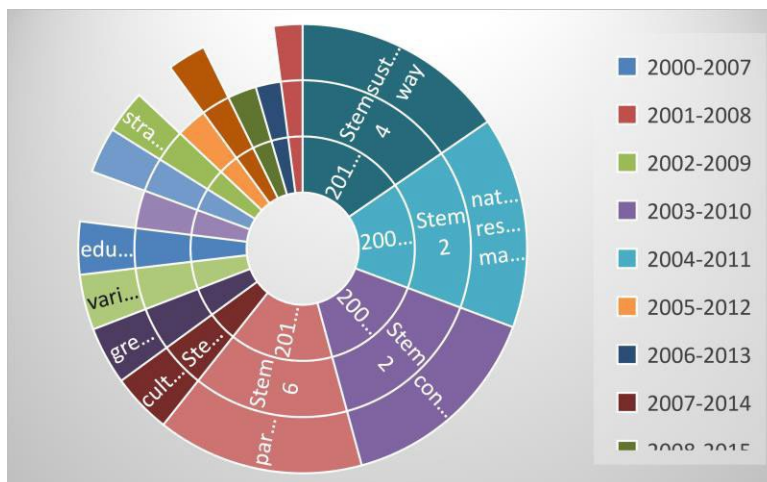


Figure 3. Top of keywords used.

Source: Authors' own research.

As the global population increases, so does the environment, a trend demonstrated on graphs of human population numbers, economic growth, and environmental indicators. In the table above, we made a list of the keywords used and thus we wanted to highlight the directions that require attention, and these would be education, culture, and strategies.

4. Sustainable development objectives

In 2015, after the adoption of the 2030 Agenda for Sustainable Development, the member states of the United Nations (UN), certain higher education institutions around the globe-initiated actions that meet the major challenges both individually and collectively. Scientific articles and position papers on the role of higher education in relation to the Sustainable Development Goals (SDGs) have been made available to people, high participation initiatives in the field of higher education on sustainability have been launched (Andreescu et al., 2012; Trandabat et al., 2012).

The goal has 17 targets to be achieved by 2030, divided into five categories: finance, technology, capacity building, trade, and systemic issues. Progress towards the targets will be measured by 25 indicators (Taucean et al., 2019; UNDESA, 2020). All targets are considered means of implementation (Bartram et al., 2020; Sarfraz et al., 2022).

4.1 Global trends

The speed with which technology evolves poses increasing challenges in keeping pace with the development and validation of knowledge about technological breakthroughs.

The ability of universities to understand and be aware of technological change in the teaching, research, or administrative process, how to connect to them, but especially the role in the promotion and dissemination of technology are of fierce importance for society (Berger & Luckmann, 1967; Ansoff & McDonnell, 1990).

Thus, numerous knowledge resources are available that capture technology generation (European Commission, 2009). By identifying emerging technology trends that have the

potential to open new routes to achieving strategic goals, with a horizon of one to two years, they provide diverse insights for organizations. The annual "tech trends" reports published by Deloitte and the Future Today

Institute are such examples of structuring knowledge about technological change (Deloitte Insights, 2019; Future Today Institute, 2019). For example, Deloitte's 2019 report provides an overview of technological change trends over the last decade, Figure 4 (Deloitte Insights, 2019).

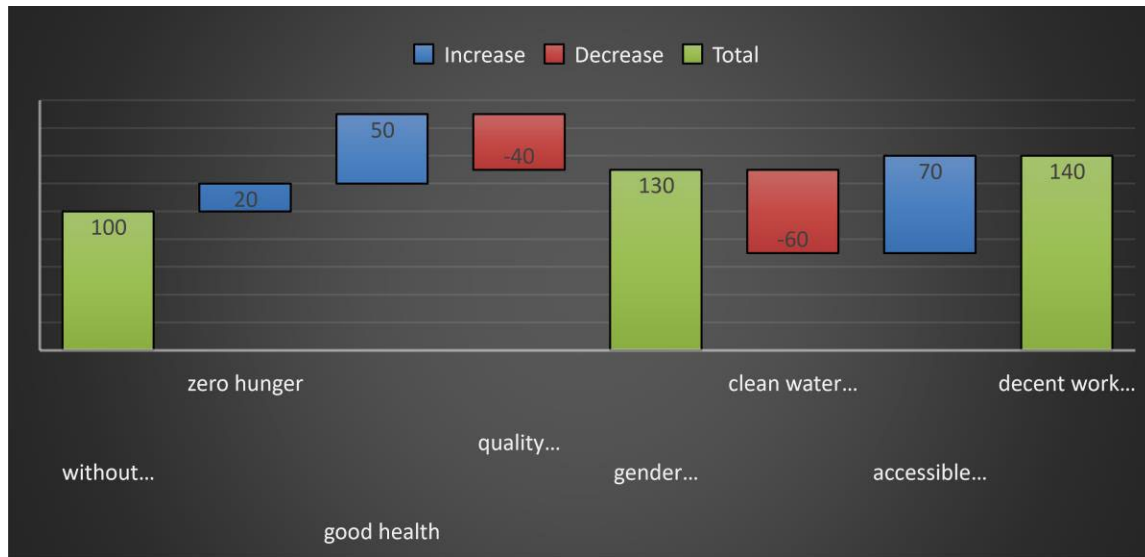


Figure 4. The first 8 objectives of sustainable development

Source: Authors' own research.

In Figure 4, the first 8 sustainable development goals (SDGs) were analyzed. Following this graph, education plays a very important role, it must be understood as education that encourages the change of knowledge, values, and skills to become a more sustainable society for everyone.

Beyond inspiring professional practice, the underlying rationale of these resources is that although the uncertainties of the future cannot be resolved, organizations can prepare to think strategically, using signals and trends defined by information, based on connecting knowledge, in instead of venturing into simple predictions. The recommended approach in using this type of knowledge is to make connections between trends, the organization, and the sector of activity, to think exponentially and act accordingly (Zaman & Gherasim, 2006).

4.2 The initiative of the European universities

As a response to the socio-economic challenges and the changing nature of higher education in Europe and responding to the request of the European Council, in 2017 the European Commission launched the European Universities Initiative – developed in collaboration with higher education institutions, student organizations and member states of European Union. European universities are meant to be "transnational alliances that will become the universities of the future, promoting European values and identity and revolutionizing the quality and competitiveness of European higher education" (CE website, Education and Training) (Rampelt et al., 2019).

They will include partners of all institutional types and from all regions of Europe, operate based on long-term strategies focused on sustainability, excellence, and European values, offer a student-centered curriculum, and respond to the main issues facing the European Union, in an interdisciplinary, challenge-based approach. Three Romanian universities are already part of the first 17 European university consortia: CIVICA – the European University of Social Sciences, CIVIS – a civic university alliance and CONEXUS – the European University for Intelligent

Sustainable Development of Coastal Urban Areas, in the first wave, from June 2019 (Global University Network for Innovation, 2019).

Conclusion

The present work is based on fundamental research, the data being made with the help of Harzing Publish or Perish software, facilitating the extraction of information from the Google Scholar platform.

The obtained results show that the field of sustainability is of interest for research, with the number of publications increasing during the analyzed period, with some fluctuations. The keywords analyzed show that education, economic growth, and climate action are among the most used and require further attention in the future. It therefore continued with an analytical description of the global landscape in which universities operate in managing the challenges of sustainable development. Higher education institutions require specific capabilities and resources such as institutional flexibility, arguing that forward thinking is the way to go.

Sustainability can benefit humanity in both the short and long term, as it can mean the conservation of natural resources, which are often not sustainable, and on top of that, harm the environment. The limitations of the paper refer to the use of a single database. Future research will also address other databases.

Achieving sustainability involves strategies for the sustainable development of the planet, ecologically protected, of the population, effectively educated, and of economic production, managed managerially, under conditions specific to the knowledge-based information society, able to create added value in an innovative and regenerative context.

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Is the concept of sustainability addressed by companies?

A growing number of companies are integrating sustainability into their business strategy, realizing that they can succeed by doing good. But what exactly does sustainable development in business mean and how can it be defined? Well, sustainable development refers to how an entrepreneur can grow a business without negatively impacting the environment, community or society in which they operate. Sustainability in a business is generally addressed to two large categories: the effect the business has on the environment and the impact it has on societies.

The research highlights that this concept of sustainability is addressed by more and more companies. It turns out that there is an interest in this approach among small and medium-sized enterprises, even if there is no legislative obligation.

1. Does the concept of sustainability present new research directions?

The concept of sustainability is intended to be a solution for natural resources that are limited, and our role is to protect them.

Sustainability is an ideal, and its achievement can only be achieved through a concept of sustainable development, based on the three pillars: economic, environmental and social.

The bibliometric analysis highlights new research directions in the area of sustainability, among which are: strategies for increasing the presence of women in management positions, the efficiency of material resources at the organizational level, the improvement of the water and carbon footprints, tools for sustainability reporting, the development a template for reporting efficiency and entrepreneurial sustainability.

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