Bioeconomy in the Development Context of the Sustainability Global Concept

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Summary

The primary topic of sustainable development is the relationship between humans and nature, or human settlements and landscapes. Given the pressing needs, the science of sustainability and bioeconomy, being a multidisciplinary field, can be expected to play an important role in acquiring expert knowledge and contributing to the realization of sustainable society. Sustainable development together with bioeconomy is part of the mission of international, national, supranational organizations and institutions, cities, municipalities, as well as non-governmental organizations. The main goal is to provide a comprehensive overview of definitions that have been presented in the global context of sustainability, to identify the main development milestones when defining this phenomenon and to evaluate the links to bioeconomy. The partial goal is to identify the approaches of selected Czech organizations to sustainable business. The literature search of sources is performed along with the bibliographic analysis of the internationally used term 'bioeconomy'. Primary data were obtained through the quantitative research in the form of a questionnaire survey (n = 183) and through the qualitative research using focus groups and individual interviews (n = 8). The content analysis revealed a terminological inconsistency and the need to formulate a bioeconomy strategy at the level of the CR.

***Keywords**: sustainability, triple bottom line, development concept, bibliographic analysis, organization, bioeconomy strategy*

Introduction

For several decades, Mebratu[1] and Jabareen[2, 3] agree on the fact that the lack of a comprehensive theoretical framework does not allow for the understanding of the complexities of sustainable development. Due to the inadequate terminology, Neuwirth[4] even suggests another name, namely "development policy", which, in his opinion, is more inclusive and dynamic. Lozano[5] sees sustainability as a "goal", while he describes sustainable development as a "process" to achieve it. Prug and Assadourian[6] and Sartori et al.[7] further agree that sustainable development is required to achieve sustainability. In this sense, the so-called triple bottom line concept[8, 9, 10, 11], which supports the assessment of overall business performance based on three important areas: profit, people, and planet, and which arose from the frustration with traditional, financially focused measures of business performance, cannot be overlooked.

The main goal is to provide a comprehensive overview of definitions that have been presented in the global context of sustainability, to identify the main development milestones in defining this phenomenon and to evaluate the links to the bioeconomy. The partial goal is to identify the approaches of selected Czech organizations to sustainable business. The article consists of five main parts – Introduction (introducing the topic, its topical nature, and deducing the goal), Theoretical Background, where the opinions of mostly foreign authors on the examined issue are compared, Results (presenting the results of the research conducted), and the final chapter called Discussion and Conclusion that only compares the results achieved by foreign researches with the results of the research presented, including recommendations for organizations engaged in sustainable business.

Theoretical Background

It is evident that sustainable development is based on three pillars[12]: the concept of development (the socio-economic development in accordance with environmental constraints), the concept of needs (the allocation of resources to improve the quality of life) and the concept of future generations (the sustainable use of resources in accordance with the needs of future generations). Klarin[12] draws, besides other things, on the definition of the publication that was an important milestone focusing on diverse considerations concerning the relationship between humans and the environment, namely Our Common Future, published in 1987, also known as the Brundtland Report. Sustainable development has undergone fundamental changes and various stages of development throughout history. Table 1 below lists the most important milestones in the history of defining sustainable development and the essential activities related to the concept.

Table 1: The overview of selected activities related to the global concept of sustainable development and its background since the 1960s

Year, event/institution, place	Note
1969, Man and His Environment was published	The publication, which was written by nearly 2,000 scientists, focuses on activities aimed at preventing global environmental degradation.
1972, the UN Conference on the Human Environment, Stockholm, Sweden	The conference represents a crucial step in the development of sustainability and sustainable development concept. The Limits to Growth study was created as one of the documents for the conference. The principles of the Stockholm Declaration were adopted (26).
1973, the International Union for Conservation of Nature (IUCN), Gland, Switzerland	In 1973, the IUCN defined the conservation of nature and natural resources as a way of managing natural resources and living organisms, including humans, to achieve the highest sustainable quality of life.
1979, the First World Climate Conference, Geneva, Switzerland	The conference focused on the research in the field of climate change monitoring.
1980, IUCN, United Nations Environment Programme (UNEP), World Wide Fund for Nature (WWF)	The creation of the World Conservation Strategy (WSC). This is the first document in which the concept of sustainable development is accepted.
1981, the UN Conference on Least Developed Countries, Paris, France	The outcome of this conference is a report with guidelines and measures to help the underdeveloped countries.
1984, the United Nations World Commission on Environment and Development (WCED) was established	Since the establishment of the WCED, a more comprehensive concept of the environment, i.e., the environmental and development issues on a global scale, has been pressed for.
1987, WCED	The study called Our Common Future (Brundtland Report) was published. It is a holistic concept, defining the term 'sustainable development' for the first time and linking it to the requirement of social equality.
1987, the Montreal Protocol	The Protocol contains research results on substances that deplete the ozone layer.
1990, the UN Centre for Human Settlements	The People, Settlements, Environment and Development report was formulated, setting out a basic framework for the sustainable development of settlements.
1992, the United Nations Conference on Environment and Development (the Earth Summit), Rio de Janeiro, Brazil	27 principles for sustainable development have been adopted within the Declaration on Environment and Development (the Earth Charter). Agenda 21 was established as a detailed action plan for the environmental protection.
1992, the adoption of Act No. 17/1992 Coll., on the Environment, Czech Republic	Josef Vavroušek pushed through the current definition of the principle of sustainable development as stated in Section 6 of the Environmental Act most.
1993, the UN Committee on Sustainable Development was established	A year later, Europe 2000+ was published.
1995, the founding of the World Business Council for Sustainable Development (WBCSD), Geneva, Switzerland	WBCSD is an international organization based in Geneva that brings participants from different business sectors and socio-economic spheres together.
1997, the UN Climate Change Conference, Kyoto, Japan	After intensive negotiations, the Kyoto Protocol was adopted, outlining the obligation to reduce greenhouse gas emissions for selected countries.
1998, the OECD Council meeting, Paris, France	Sustainable development has been declared a priority for member governments. The key outcome of the conference is considered to be a three-year project resulting in the comprehensive publication called Sustainable Development - Critical Issues.
2000, the Millennium Summit, New York, USA Summit	The Summit confirmed the concept of sustainable development set out in Rio de Janeiro in 1992. The so-called Millennium Development Goals (MDGs) were set.
2002, the World Summit on Sustainable Development, Johannesburg, South Africa	The creation of the Johannesburg Declaration on Sustainable Development, which provides an ideological framework and does not commit states to action.
2006, the renewed EU Strategy for Sustainable Development	In addition to identifying persistent unsustainable trends, the strategy addresses improving the lives of current and future generations through sustainable, resource-efficient communities.
2009, the World Climate Conference, Geneva, Switzerland	The World Climate Conference helped to further develop the global system for monitoring the climate change in order to early detect potential disasters.
2009, Summit G20, Pittsburg, USA	G20 members concluded an agreement on a sustainable economy.
2012, the UN Conference on Sustainable Development Rio +20, Rio de Janeiro, Brazil	One of the outcomes of the conference is the final document known as 'The Future We Want'. The process of creating the 2030 Agenda began.

2012, the establishment of the Czech branch of WBCSD – the Czech Business Council for Sustainable Development (CBCSD)	The Czech branch of CBCSD cooperates with a number of national as well as international institutions and companies.
2015, the UN Action Programme Addis Ababa, Ethiopia	The United Nations Program of Action on Financing for Development, in which countries committed themselves to technology and innovation cooperation and reaffirmed their commitment to providing development assistance.
2015, the UN Summit, New York, USA	The Sustainable Development Agenda was adopted by the UN Summit in New York in the document titled 'Transforming Our World: The 2030 Agenda for Sustainable Development', which includes the Sustainable Development Goals (SDGs).
2015, the adoption of the Paris Agreement	The Paris Agreement was adopted by the Parties to the UN Framework Convention on Climate Change. The Agreement implements the provisions of the UNFCCC and replaces the Kyoto Protocol after 2020.
2015, Vision 2050 of the Czech Republic from the perspective of the CBCSD	The Vision aims for a long-term prosperous society, a growing quality of life, environmental protection, and social cohesion.
2015, the Sendai Framework for Disaster Reduction 2015-2030	For the first time, the Sendai Framework implemented targets aimed at reducing the impacts of adverse events and natural disasters. The main ambition of the adopted Framework is to significantly reduce the number of fatalities, damage to key infrastructure and economic losses caused by disasters by 2030.
2017, the Strategic Framework Czech Republic 2030	The Framework set out long-term priorities in key areas. The aim is to improve the quality of life in the Czech Republic.
2018, A New Bioeconomy Strategy for Sustainable Europe	The European Commission presented an action plan to develop a sustainable and circular bioeconomy to serve society, the environment and Europe´s economy.

Source: own elaboration (2021).

The above-mentioned milestones may be divided into the following periods[13]: the development stage until the late 1970s, stagnation from 1980 to 1986, and the decline period from 1987 to 1995. However, this approach needs to be revised in the light of recent developments. Since 2000, there have been a number of major events in which the Sustainable Development Goals (SDGs) have been formulated (the UN Summit in New York). The 17 SDGs set out by the 2030 Agenda have slowly followed in the implementation process of the Millennium Development Goals (MDGs), which consisted of 8 rather ambitious development goals[14, 15]. In consideration of the above, it can be summarized that still there is currently no uniform terminology or comprehensive procedure for implementing sustainability principles into individual business processes[16, 17, 18, 19]. According to the authors, the most frequently mentioned driving forces are circular economy[20], corporate social responsibility[12, 21, 22], shared economy[23, 24], technological innovation[25], and lean manufacturing[26] including all types of innovation[17, 27].

To sum up, considering the theoretical background and the results of research in both the Czech organizations and abroad[18, 19, 28], one of the pillars of sustainable and responsible business is currently the readiness of organizations for demographic changes, employee training, offering flexible working hours or focusing on equal opportunities and diversity. It is important to realize that the success of organizations always comes with diverse and motivated employees who are loyal and want to work for their employer, which is supported by e.g.[22].

Nevertheless, the issues are still in their infancy and need to be addressed as well as the research needs to be directed at them. Based on the information above, we can identify the knowledge gap in the sense of missing comparison between sustainable business across sectors and different organizations together. The theory does not answer the question about differences in sustainable business through the bioeconomy in different organizations in the past several years. Therefore, the study will also focus on this part of the issues.

Methodology

In connection with the main goal of the research, the key historical milestones in forming the concept of sustainable development and definitions that are in line with the mainstream concept of sustainable development are presented. By analyzing professional sources (monographs, papers, articles) in the professional databases, such as Engineering Village, Elsevier, ISI Science Direct, Scopus and Wiley, keywords and their variants are searched: sustainable business, environmental sustainability, economic sustainability, social sustainability, performance measurement, sustainable development. In preparation for the research, publications and other documents related to sustainable development are reviewed, reflecting at least 25 years of research by scientists and experts in the field.

For the bibliographic analysis, the Web of Science database (indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-EXPANDED, IC; all years) was searched for the topic 'bioeconomy' and a total of 2,258 records were found without time limitation. All records were processed in the VOSviewer_1.6.16 program, and the focus was on the keywords used in the studies and the links between them (the minimum number of occurrences was 5; 142 met the threshold). The quantitative data were obtained by the primary research using a questionnaire survey in Czech organizations (*n* = 183), the survey was carried out from 06/2020 to 12/2020. The sample was based on the ALBERTINA database of organizations (which contains important data of more than 2,700,000 organizations registered in the Czech Republic). The questionnaire was distributed to companies by e-mail, 850 companies were contacted twice (with a reminder), the rate of return of the questionnaire is 22%. The results can only be generalized for the research sample.

The sector where the organization operates (primary, secondary, tertiary), the size of the organization according to the number of employees, annual turnover, majority ownership (domestic, foreign), and the type of organization (private, public, non-profit) were surveyed, see Table 2.

Table 2: Organizations that participated in the research – basic data

Characteristics	Categories		
The sector of organization´s operation	**Primary**	**Secondary**	**Tertiary**
	4.4%	41.5%	54.1%
The size of the organization	**<50**	**51–249**	**>250**
	26.2%	28.4%	45.4%
Majority ownership	**Domestic**	**Foreign**	
	45.4%	54.6%	
The type of organization	**Private**	**Public**	**Non-profit**
	85.8%	11.5%	2.7%
Annual turnover	**<10 mil. EUR**	**11–50 mil. EUR**	**>50 mil EUR**
	38.3%	37.7%	24.0%

Source: own survey (2021).

The data were evaluated using descriptive statistics. Then, the qualitative research was conducted, the questionnaire was designed to comply with the ethical rules and with the requirement for anonymity. The quantitative research consisted of interviews (*n* = 8) and focus groups with a moderator (*n* = 6). The topic of bioeconomy and its influence on sustainable business were discussed.

Results

Table 3 summarizes the chronological overview of definitional variants characterizing the meaning of global sustainable development of the most important events and authors. The most frequently cited definition of sustainable development, which comes from the above-mentioned publication, is as follows[29]: "development that meets the needs of present generations without compromising the ability of future generations to meet theirs, and without doing so at the expense of other nations". However, the simplicity of this approach is misleading, according to some authors[30, 31, 32, 33]. Redclift[30] contextualizes the different needs of diverse cultures and cultural specifics, perceiving the term even as an oxymoron[33]. It is clear that needs evolve over time, the definition above points to the time indefinite and positive development of global civilization. The contradictory aspect of the definition[34] is also reflected in the fact that it anticipates a long-term positive development for future generations, but on the other hand acknowledges that some groups may be adversely affected by certain interventions. This definition does not offer a methodology or guidance on what strategies, plans or activities need to be implemented[35].

Parkin et al.[36] state that there are more than 200 definitions of sustainable development. Authors across the decades, such as Mebratu[1], Franklin and Blyton[37], Uitto[38], Cobbinah et al.[39] and Zhang and Zhu[32] agree that the terminology is unclear and ambiguous, which is also evident in Table 2 below, giving the chronological overview of the definitional variants of and background to global sustainability and sustainable development.

Table 3: The chronological overview of the definitional variants of the term 'sustainable development' and its background since the 18th century

Year	Author / Institution / Measure	Note/Definition
1713	Carlowitz	Hans Carl von Carlowitz used the term 'nachhaltende Nutzung' (sustainable use) in his publication within the idea of sustainable forest use - only as much wood should be cut as could be recovered through planned afforestation projects[40].
1798	Malthus	Malthus is considered the forerunner of the concept of sustainable development and the first economist to foresee the limits to growth caused by the lack of resources[41], see Essay on the Principle of Population.
1817	Ricardo	Ricardo set up a more complex economic model, the essence of which is that economic growth has been deteriorating in the long run due to the scarcity of natural resources. He stated that the physical limitation of a given resource will affect its price in the long run[41].
1978	Organization of American States (OAS)	The OAS has identified specific sub-areas (economic, social and the dimension of natural resources) within its infrastructure development projects focused on watercourse management.
1980	World Conservation Strategy (WCS)[42]	The main objectives of this strategy include: the maintenance of the most important ecological processes, the observance of genetic information of all species, and the sustainable use of all populations and ecosystems.
1987	Brundtland et al.[29]	Sustainable development is such a development that meets the needs of present generations without compromising the ability to meet the needs of future generations.
1988	Tisdell[43]	Sustainable development is the conservation of genetic diversity and the sustainable use of species and ecosystems.
1990	Harwood[44]	Sustainable development is an unrestricted development system, where development focuses on achieving greater benefits for humans and the more efficient use of resources in balance with the environment required for all humans and other species.
1992	Dovers and Handmer[45]	The process and mechanism to achieve the intended sustainable development or the process of planned change and improvement.
1994	Elkington[8]	Triple bottom line is a balance among three pillars: environmental, economic, and social.
1995	Holdren et al.[46]	Sustainable development requires a process with a precondition that can be maintained indefinitely without a gradual reduction of valuable qualities inside or outside the system in which the process operates.
1998	Meadows[47]	Sustainable development is a social construct derived from the long-term development of an extraordinarily complex system - the human population and economic development integrated into the ecosystems and biochemical processes of the Earth.
1999	Elkington and Rowlands[48]	Sustainable development encompasses the simultaneous pursuit of economic prosperity, environmental quality, and social justice.
2002	Dyllick and Hockerts[49]	Meeting the needs of direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, and communities) without compromising the ability to meet the needs of future stakeholders.
2005	Martin et al.[50]	*Capacity to continue into the long-lasting future.*
2007	Dean and McMullen[51]	*Sustainable development is the process of discovering, evaluating, and exploiting economic opportunities that are present when market failures reduce sustainability, including those that are relevant to the environment.*
2008	Lozano[5]	Sustainable development means exploiting holistic, continuous, and interlinked phenomena between economic, environmental, and social aspects. Every decision has implications for all aspects today and in the future.
2010	Mitchell and Maxwell[52]	Climate compatible development.
2014	Griggs et al.[53]	Development that meets the needs of the present while maintaining the life support system on the Earth on which the well-being of present and future generations depends.
2017	Holden et al.[54]	Sustainable development is the limitation of human behaviour, including the limitation of economic activity.
2020	Zhang and Zhu[32]	Achieving higher and more evenly distributed levels of welfare within ecological limits.
2021	Hummels and Argyrou[33]	Sustainable development can best be seen as development that meets the needs of the present, corresponds to planetary boundaries, and does not jeopardize the ability of future generations to meet their own needs without crossing the same planetary boundaries.

Source: own elaboration based on the sources listed in the table (2021).

Since the ground-breaking work of Brundtland et al.[29], the term 'sustainable development' has been used in different ways depending on whether it has been formulated in an academic context or in an organizational, business, or environmental policy. The Brundtland Report develops the concept of needs, especially basic needs, which should be given the highest priority (see SDGs). Of course, a situation in which people are unable to provide for their basic human needs does not allow for addressing the protection of certain environmental components. As can be seen from Table 2, the definitions are inconsistent. Closely connected to sustainable development is the multidisciplinary field called bioeconomy, which has relatively short historical development[55] and represents one of the main paths to sustainable development. The links to food securing, depleting natural resources, and polluting the environment, including the climate change, are the main reasons for the emergence of this multidisciplinary approach.

According to Lovrić et al.[56], the origins of bioeconomy can be traced back to the White Paper – Growth, Competitiveness and Employment – Challenges and Ways Forward into the 21st Century of 1993, which emphasizes knowledge-based investment and the greater role of biotechnology in innovation. The authors also mention the Lisbon Strategy adopted in 2000, which highlights and calls for a competitive knowledge-based economy capable of sustainable economic growth while creating more jobs. The year of 2005 gave rise to the new concept of knowledge-based bioeconomy[57, 58], whose key players are European technology platforms, which can include industry forums that create short-term as well as long-term agendas in research and innovation at both national and European levels. Finland was one of the first countries to develop its own bioeconomy strategy in 2014[58], which can be seen as a new pathway to the sustainable green economy with the support for growth and innovation while conserving natural resources. Von Braun[59] emphasizes the sharing of new bioeconomic knowledge of rich countries with developing countries and promoting the adaptation to local conditions, which is a current global challenge and collective action. At present, according to Lovrić et al.[56], industry is the predominant powerhouse of EU research and innovation priorities, which are dedicated to capital-intensive systems and higher levels of global value chains.

Bioeconomy[56, 60] is based on agriculture, forestry, aquaculture, food industry, energy, chemical industry, and biotechnology industries including pharmaceuticals. This is a new progressive interdisciplinary research area and the interdisciplinarity of the field is clearly visible. The scientific contribution to solving these problems therefore necessarily requires a multifaceted and integrated approach or interdisciplinary research[61]. Bioeconomy can be defined as an economy where the basic building blocks for materials, chemicals and energy come from renewable biological resources[62]. At the same time, the bioeconomy is a social economy, i.e., a service to society, humanity, and thus to the entire planet, responsibly performed to improve the quality of life.

The bioeconomy assumes a close connection to sustainable development[63, 64]. Not only the evolution of the global population, but also the continuous changes in the environment, climate and ecosystems and their negative impacts highlight the need to address the issues of bioeconomy in a broad context, namely by using knowledge-based and innovation approach. The concept of knowledge-based economy reflects the vision of achieving economic growth through high-tech industries, which requires investment in innovation and highly skilled workforce. An interesting paradox is that the concept of bioeconomy has become prominent in politics, science, and research, yet Western countries use the concept of bioeconomy for promoting research and innovation processes to create better economic development and growth based on biological foundations[60]. Bioeconomic disciplines deal with complex social problems and challenges, in which environmental, economic, and social dimensions are dynamically interconnected in both conflicting and mutually improving behaviour, which is referred to as 'wicked problems'[65].

Strategies in bioeconomy are often contradictory[66], leading to diverse views on the measures needed to realise its potential. This can be linked to the fact that bioeconomy integrates a number of sectors[60] with completely different perceptions from the society´s perspective. The European Bioeconomy Strategy was developed in 2018 following the update of the original Bioeconomy Strategy[67], which was a necessary step to accelerate the implementation of sustainable European bioeconomy to maximise the contribution to the 2030 Agenda and its sustainable development goals (SDGs) as well as the Paris Agreement. The Czech Republic does not have a separate conceptual document on bioeconomy yet, but the ideas and principles of this multidisciplinary field are emphasized in a number of national strategies, especially in the Strategy of the Ministry of Agriculture with a view to 2030[68]. What is characteristic of the concept is that it involves a massive transformation of current production and consumption systems. The rise in bioeconomy as a global concept is reflected not only in the growing number of countries that have strategies and policies related to bioeconomy and bioeconomics, but also in the scientific literature, as illustrated in Figure 1, which shows the number of records that have the term 'bioeconomy' in their titles, summaries, or keywords.

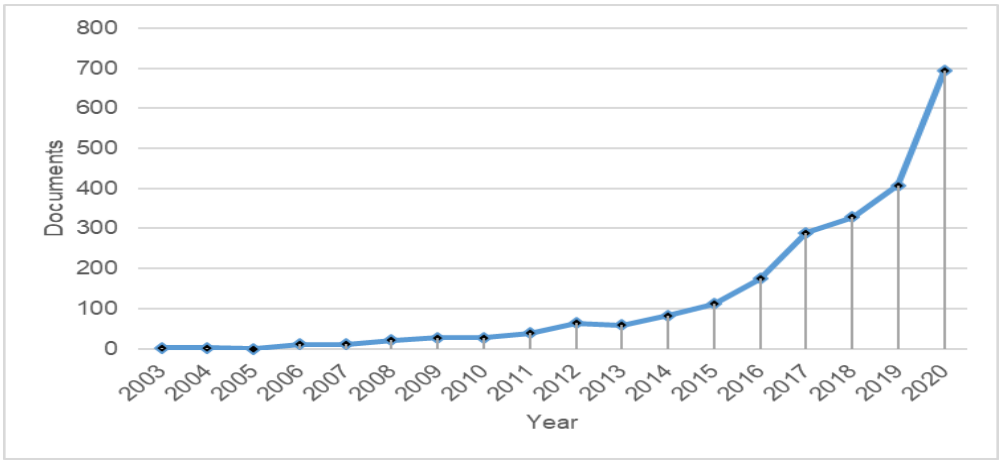

Figure 1: The number of publications related to bioeconomy listed in the Scopus database
Source: Scopus[69], own processing (2021).

It is clear from Figure 1 that this multidisciplinary field is increasingly being referred to in the empirical research, as evidenced by Lovrić et al.[56]. A total of 2,258 entries with bioeconomy have been found in the bibliographic analysis.

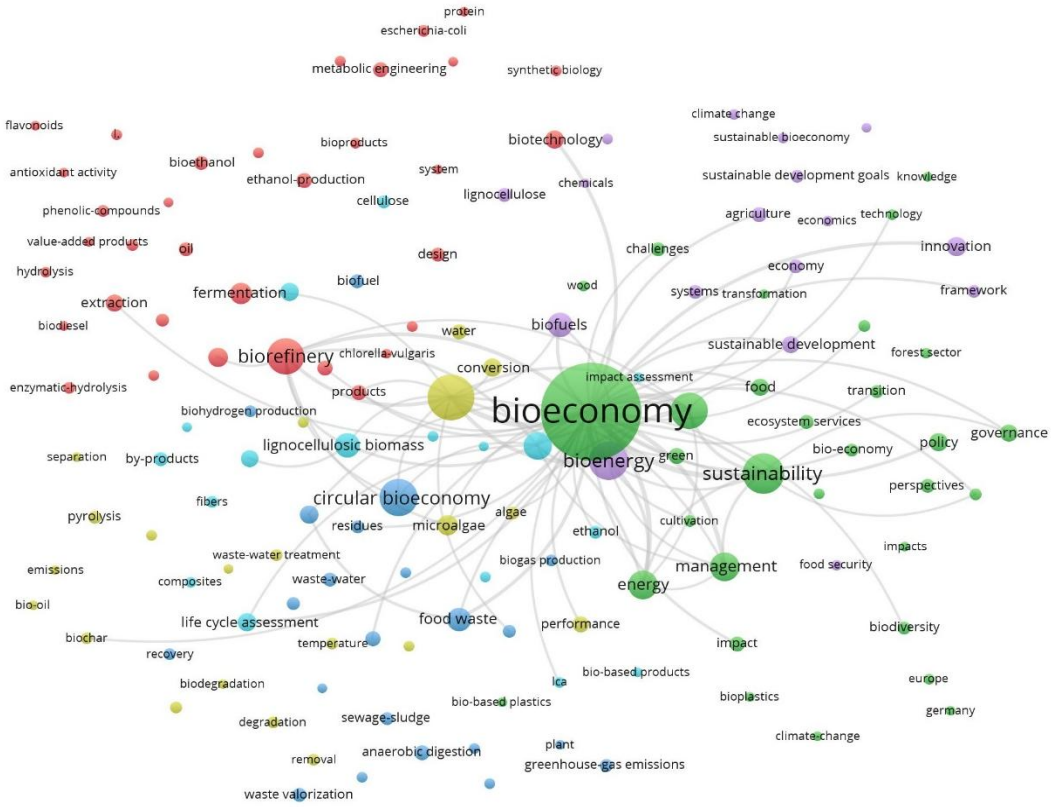

Figure 2: The bibliographic analysis in WoS – Bioeconomy and the most important keywords
Source: own processing in VOSviewer_1.6.16 program (2021).

As shown in Figure 2, the research in bioeconomy is strongly focused on sustainability, sustainable development, circular economy, management, energy, bioenergy, biorefinery, biofuels, and last but not least the food industry. As far as the future till 2050 is concerned, Sarkar et al.[70] identify several major challenges in the context of bioeconomy, which will require transformation and innovative processes that are interconnected with the environment, the health of individuals, sustainable production and consumer demands driven by the projected growth in the world´s population.

Based on the results of the primary research in the selected organizations in the Czech Republic, it can be summarized that the majority of the surveyed organizations are engaged in sustainable business (41%), but the focus group showed that the main reason is the pressure of the external environment, both global and national. Table 4 shows the attitudes of the surveyed organizations with regard to their focus on the 3 pillars of sustainable business.

Table 4: The pivot table (%) of organizations focusing on the three-pillar system by the annual turnover

Organization´s focus	Annual turnover			Total
	<10 mil. EUR	11–50 mil. EUR	>50 mil. EUR	
Organization´s focus – economic and environmental	3%	4%	2%	**9%**
Organization´s focus – economic and social	10%	10%	7%	**27%**
Organization´s focus – economic	10%	9%	4%	**23%**
Organization´s focus – economic, environmental, and social	15%	15%	11%	**41%**
Total	**38%**	**38%**	**24%**	**100%**

Source: own processing (2021).

The results show that 41% of organizations implement projects aimed at environmental protection, projects beneficial to employees, local locations, or as the case may be to other important stakeholders, together with the pursuit of economic objectives. Last but not least, the dependence of selected variables on the identification features of the organization (size by the number of employees and annual turnover) is examined, see Table 5.

Table 5: The organization´s orientation in accordance with the selected principles of sustainable business – testing of dependencies between the selected qualitative variables

Variable	Annual turnover *p*-value/ Cramer´s *V*	Size *p*-value/ Cramer´s *V*
Results	0.260/-	0.114/-
Customer	0.609/-	0.647/-
The product quality	0.172/-	0.354/-
Innovation (adaptability and flexibility)	0.268/-	**0.042/0.183**
In-house processes	**0.040/0.185**	**0.002/0.255**
Increase in profit	0.587/-	0.910/-

Source: own processing (2021).

The null hypothesis about the independence of the organization´s size (*p*-value 0.04) and the annual turnover (*p*-value 0.002) and the fact that the organization is process-oriented is rejected. Furthermore, the null hypothesis about the independence of the organization´s size (*p*-value 0.04) and the focus on innovation in the context of responsiveness and adaptability is rejected. The majority of the interviewed company representatives have agreed that sustainability is necessary mainly in supply chains, innovations, and digitization, including the increase in labour productivity. Such an approach helps good external presentation to final consumers and contributes to better financial results.

Discussion

The survey and research conducted, in the context of objectives, confirm the lack of uniformity in the understanding of the concepts and the diversity of definitions in the field of sustainability and bioeconomy[2, 3]. Historically, it can be stated that although these terms are widely used by organizations, they do not always lead to an accurate understanding of the meaning. Biely et al.[71] mention sustainable development as a need for permanence in terms of understanding society, but the evolving society over time does not allow for the unambiguous permanence of defining, as is the case, for example, with physical units and the like. For this reason, developmental changes in sustainable development can be viewed as changes that copy, among other things, changes in the society´s view of the issues, and the milestones listed in Table 1 are proof of this.

Sustainable development, as a separate term, is understood differently, depending on the area in which the company deploys it. In practice, together with the changing understanding of the primary purpose of an organization, it is closely linked to the economic power of the organization. The overriding need for economic saturation or return on investment or other non-monetary benefits in the understanding and implementation of all measures and rules associated with sustainable development then becomes an unwritten rule, just as can be found in Schaltegger, Wagner[72]. Subsequent value chains are already so extensive that they force the organization to diversify and have a multidisciplinary understanding of all activities[73, 74]. The logical result is then the necessity to have procedures and standards elaborated and to have defined areas of sustainability integrated into the normative understanding with a declaratory overlap, which are often not fully implemented in a procedural way[19].

From the primary research conducted in the selected Czech organizations, it is clear that a large number of organizations are already engaged in sustainable business in the sense of directing their projects at other non-economic benefits, especially in the environmental and social direction. However, it is also evident that in such cases, in addition to the pressure of the environment on the associated effects, the size of the organization, the organization chart and incentives from the public space play an important role. It can be agreed[5] that these links give a good subject for further research in the future to reveal the interactions and influence of individual process components on the effectiveness of sustainable development and bioeconomy.

Conclusion

At present, there is insufficient theoretical and practical knowledge to exploit the potential of bioeconomy based on the principles of sustainable development, and it is therefore necessary to focus more resources on research and development, innovation, new technologies and practices meeting the priority objectives of bioeconomy and circular economy. The agricultural and forest bioeconomy is a global trend, with approximately 50 countries implementing bioeconomy strategies over the past decade[59], including high and middle-income countries. At present, the Czech Republic does not have strategies set sufficiently to reflect the desired direction of bioeconomy, and therefore it is necessary to take fundamental measures to support the development of this multidisciplinary field, and thus to gain a competitive advantage and other social, economic, and environmental benefits as soon as possible.

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Bioekonomika v kontextu rozvoje globální koncepce udržitelnosti

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Souhrn

Primárním tématem udržitelnosti rozvoje je vztah člověka a přírody, resp. lidských sídel a krajiny. Vzhledem k naléhavým potřebám lze očekávat, že věda o udržitelnosti a bioekonomice, jež je multidisciplinárním oborem, bude hrát důležitou roli při získávání odborných znalostí a přispívat k realizaci udržitelné společnosti. Udržitelný rozvoj spolu s bioekonomikou jsou součástí poslání mezinárodních, národních, nadnárodních organizací a institucí, měst i městských částí a v neposlední řadě nevládních organizací.

Hlavním cílem je prezentovat ucelený přehled definic, které byly v globálním kontextu udržitelnosti předkládány, identifikovat základní vývojové milníky při definování tohoto fenoménu a vyhodnotit vazby s bioekonomikou. Dílčím cílem je identifikovat přístupy vybraných českých organizací k udržitelnému podnikání. Je provedena literární rešerše zdrojů spolu s bibliografickou analýzou mezinárodně využívaného termínu bioeconomy. Primární data byla získána na základě kvantitativního výzkumu formou dotazníkového šetření (n = 183) a kvalitativního výzkumu pomocí focus group a individuálních rozhovorů (n = 8). Obsahová analýza odhalila terminologický nesoulad a potřebu formulování strategie bioekonomiky na úrovni ČR.

Klíčová slova: *udržitelnost, triple bottom line, koncept rozvoje, bibliografická analýza, podnik, strategie bioekonomiky.*