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Concept of sustainable development at Wrocław University of Science and Technology based on the perspective of selected stakeholder groups

Anna Brdulak^{1*}  Bartosz Stec¹

¹Faculty of Management, Wrocław University of Science and Technology, Wrocław, Poland

*Corresponding author; email address: Anna.Brdulak@pwr.edu.pl

Abstract

The topic of sustainability has taken root in the world of science and business, and much has been said about introducing the concept to businesses or the construction industry. Much less attention has been paid to describing the proposed improvements in educational institutions, such as universities. The study aims to find space in both the employee and student environment to introduce the idea of sustainability, not only in terms of green buildings but also in the concept of work. The authors focused on identifying the most valuable benefits and the barriers that are most likely to hinder the process. They took Wrocław University of Science and Technology (Wrocław Tech) as the subject of the study. The entire study consisted of an analysis of university documents, as well as interviews with experts and students involved in university life. Taking into account the results of the analysis, conclusions were presented for further study.

Keywords: *management, sustainable development, university social responsibility, student development, sustainability*

1. Introduction

The 2030 Agenda for Sustainable Development (SD) covers a wide range of interrelated goals, including poverty eradication and economic growth, social inclusion and the achievement of environmental sustainability by 2030. Political decisions to achieve the sustainable development goals (SDGs) must have policy relevance and be developed together with the relevant stakeholders to consider the local and national conditions [34]. In this context, universities are uniquely positioned to lead the cross-sectoral implementation of the SDGs and the 2030 Agenda [10]. The legitimacy of implementing the principles of SD at universities was defined in the Program of Global Education for Sustainable Development adopted in 2013 by UNESCO, as well as in the 17 SDGs formulated in 2015 by the United Nations [35] (including goal 4: “To ensure quality education for all and promote lifelong learning”). Thus, the topic

of implementing the principles of SD at universities is still relatively new. In Poland, it has been gaining importance since 2017, that is, since the development of the document of the University's Social Responsibility Declaration by the Working Group of the Team for Sustainable Development and Corporate Social Responsibility.

Effective implementation of the principles of SD at universities depends on a systemic and comprehensive approach to the concept not only by the authorities but also by all employees of a given organization. This action involves the inclusion of social, economic and environmental issues in the activities of the university as an organization on various levels of its operation. This applies both to the way individual departments of university administration work as well as to conducting research and teaching projects at various levels of study. A holistic view and a coherent approach are the basis for building a sustainable development strategy for the entire university. It is worth emphasizing that the development and implementation of strategic assumptions require the work of all stakeholders of the university, both internal and external.

A holistic approach to implementing sustainability principles is emphasized in Cortese's article [7]. The author points out the need for cooperation between different stakeholder groups, as well as emphasizing the role of universities in educating the next generation on environmental issues. The key element that forms the basis for the implementation of any strategy is the support of the university authorities for its employees. Their understanding and acceptance of the introduction of the principles of the sustainable development strategy into the organization are the crucial elements that determine success. From this perspective, these activities are essential in understanding, accepting, and subsequently implementing the planned changes.

The growing interest in promoting the principles of social responsibility and sustainable development is visible in the increase in the number of research topics as well as scientific and educational programs discussed on this topic [8, 20, 21]. Undoubtedly, some of the basic factors that increase the involvement of stakeholders in the academic world are cultural globalization and the increasing emphasis on the implementation of sustainable development standards, the need for better cooperation with the labor market, and growing competition between universities [26]. It is important that the principles and goals of sustainable development, including social responsibility, inspire to create a culture of management and organizational behavior that is conducive to the development of the organization [25].

The university's approach to management, based on the principles of sustainable development and social responsibility, should in principle strengthen the interdependence between social and economic efficiencies, optimization of results in a triple aspects, as well as the involvement of research, teaching, administration, and service processes [16, 33]. It is worth mentioning that partial implementation of the rules in selected university units/ subjects will not lead to real changes in the entire organization [31]. Successful implementation of the principles of sustainable development will only occur when the principles of sustainable development are understood and accepted, as well as integrated with the broadly understood organizational culture of the university, by and in all stakeholder groups, becoming an integral element of the implemented activities [13, 23].

This is the reason the role of the university's sustainable development strategy is so important, as it should be comprehensive. Its guidelines, formulated in consultation with all groups of university employees as well as with identified stakeholder groups, and thus adapted to the actual needs of the

university, will provide the university with a flexible response to improvement through understanding changes. Based on the conducted literature studies, the research gap was identified, i.e. the importance of both strategical documents and undertaken by university stakeholders, including student organizations in the area of project management, activities related to the area of sustainable development.

The purpose of this article is to conduct a preliminary analysis of the university on the example of Wrocław University of Science and Technology (Wrocław Tech) that is related to SD to be able to indicate the directions of in-depth analysis and further research.

Wrocław Tech ranks fourth among technical universities in Poland. In Lower Silesia, it is in first place in the Ranking of Universities of the Perspektywy Foundation 2023 [14]. Two out of 14 fields of study, construction and chemical and process engineering, were recognized as the best in Poland. Due to its research, Wrocław Tech is a leader in innovation and dominates in this respect in the reports of the Polish Patent Office. It is worth noting that during the year the Wrocław University of Science and Technology reports on average over 100 new inventions and utility models. Considering the scale of its operations and the innovative nature of its activities, Wrocław Tech is one of the leading universities in Poland. In this context, it becomes particularly important to carefully look at the processes taking place there, including organizational culture in terms of the principles of sustainable development implemented.

It is worth emphasizing that student groups are active in Wrocław Tech, gaining recognition in various competitions on a global scale. The authors can indicate at least four scientific groups/clubs that are successful in the Polish and international arena. The first of them is the Academic Aviation Club, whose representatives have been taking leading positions in student competitions for almost 10 years. In April 2023, they won 9 gold and silver medals at the SAE Aero Design West trade show in Texas. Another example is Wrocław Tech Space, an organization that builds rockets. In 2023, its representatives won the silver medal at the Spaceport America Cup. In turn, students of the Wrocław Tech Racing Team, a club that builds racing cars, took first place in the Student Formula Poland competition in the electric machines category.

The engineering aspects of students' activities are not the only things that distinguish Wrocław Tech students from other universities. Annual presence of the university on the list of the Forum of Technical Universities in such categories as Best no-Cost Project, Student Government As A Motivator, or representatives of the 4S organization, which brings together student trainers who conduct training on various topics for internal representatives, as well as outside the university – these are initiatives indicating the dynamic and multi-aspect development of the university, justifying the choice of Wrocław Tech as an entity worth in-depth analysis in the context of sustainable development.

The research questions to which the authors seek answers are as follows:

- Q1. What are documents, initiatives, and organizational units at Wrocław Tech related to the areas of SD?
- Q2. What are the actions that the university itself as well as student organizations can take towards the idea of implementing SD?
- Q3. What is the effect of undertaking such actions and what barriers do participants notice?
- Q4. What are the experts from the university and students' expectations towards the university as a managing entity in the SD context?

In terms of cognition, this article provides new knowledge that describes reality as well as possible. Its value from the point of view of the novelty of the discussed topic seems to be high because no one has yet attempted to conduct the analysis of Wrocław Tech undertaken by the authors of the article.

2. State of the art

A meta-analysis was used to test the current state of the art in terms of SD at universities. It took the form of a systematic review (typically for the study of literature in a given area). An additional statistic taken from bibliometric analysis is the number of publications allowing one to observe changes over time. In scientific literature, the topic of SD has been raised many times, and overall, it has been mentioned 200k times. A specific plan was required to examine that many papers in search of those concerning the topic of interest to us.

The first step was to study the number of publications over the years and to narrow the research area to only works concerning the idea, goals, or introduction of SDGs in higher educational institutions (HEIs), more precisely, at universities. Therefore, the subject was not separately analyzed with a focus only on SDGs but with the reference of SDGs to universities.

Next, it was necessary to choose the subject of the works that concerned the activities explicitly implemented, without necessarily examining the impact of universities on the global knowledge of the idea of SD. To review the proper subjects, these databases were used: Web of Science and Scopus. The descriptors used in searching the databases were sustainable development, universities, introduction, and students. With these criteria, the Web of Science showed that the number of published reports about SD gained constant popularity during the 2000s. The reports began to regularly exceed 1,000 per year. By the beginning of 2019, these numbers were as high as 13,000, peaking during the COVID-19 pandemic. Those that related to universities in general accounted for around 7% over the years. The largest number of works on this subject was published in 2020 and amounted to just over a thousand. Their exact connection with the subject of the university can be divided into the following categories:

- a) those introducing practices that have a positive impact on the natural environment (i.e., [5, 30]),
- b) those examining the level of awareness of the topic of sustainable development (i.e., [3]),
- c) those introducing the scope of knowledge on sustainable development into the study plan (i.e., [12]),
- d) those building a university strategy based on the principles of sustainable development (i.e., [18]),
- e) those introducing the idea of sustainable development at the university in general (not only curriculum) (i.e., [27]).

About 500 publications are included in these categories (2015–2022).

Green management consisted of approximately 300 publications. The major focus was on topics related to the green office model [24, p. 364]. This is primarily a contribution of universities to the spread of the idea of SD at the local community level, Green Campus [24, p. 365] and education in the field of SD. The study of the level of knowledge that students have of SD was also broadly described. There are such publications as [11], in which an extra course module was added to the curriculum based on knowledge of the subject by students. It helped to start with the introduction of SD, which was finalized by the possibility presented to students to submit their proposals for projects related to SD to the university. However, only about a dozen scientific works were devoted to barriers to the introduction of these ideas as well as setting goals and inducing specific benefits for both university employees and students.

One of such papers describes quantitative research conducted at the Bucharest University of Economic Studies [24]. Students were asked about their knowledge of the subject of SD, commitment, and moti-

vation to work towards the development of this area. The subject of barriers was also raised. From the students' perspective, the main conclusion of the study was their low involvement in spreading the idea. However, this was not due to a lack of appropriate strategies proposed by universities. It was raised that there is no example of such behaviors, for example, from professors.

Another barrier described in the applications was the hardly visible reported benefits (to the employees and students) resulting from the activities that the university planned to implement under the SD programs. A noteworthy article was written by the academic staff from Colombia [17]. It describes a tool for testing the impact (effectiveness) of the campus operations that were developed and used in the process of introducing the idea of SD to their university. The authors also emphasized the fact that the university system consists of two parts: the academic and the administrative. Even though they vary significantly, neither can be ignored in introducing specific programs.

Few works directly helped the authors become acquainted with the work similar to what we had planned. One of them was an article about what documents and bureaucratic processes are worth exploring and referencing in the work [6]. The next three articles [2, 19, 23] served as a kind of benchmark. They described overcoming barriers to the introduction of the SD idea and the holistic approach. These works confirmed the belief that it is worth understanding both student and employee perspectives. They also described barriers and difficulties that can be expected during the implementation process. This was extremely helpful in determining the specific scope of the research as well as confirming the assumptions from the above-mentioned works and searching the areas not covered by them.

An analysis of the scientific literature conducted in this way naturally requires further research. However, this level of research already provides a clear picture that creating and then implementing a sustainable development strategy in an organization such as a university can still be perceived as a complex and not yet properly solved problem [29], not only in terms of management but also in science. This should be given special attention, as universities are "culture change agents" [9]. In the part of the *Declaration of the University's Social Responsibility* that describes Wrocław University of Science and Technology, it only indicates taking two actions – organising the Lower Silesian science festival and financing strategic clubs from the university – but many more activities than these, especially at a low level, can be undertaken [1]. Therefore, after identifying the scientific gap, the authors of this article decided to present their made-thus-far analysis of a given issue. It is worth noting that the analysis of the issue is not complete and will be deepened based on research planned for the future.

3. Methodology and research model description

In the research process, the authors used exploratory research. It was aimed at a general understanding of the phenomenon, including getting acquainted with the researched innovative issues [4].

Their first goal was to enable understanding of the topic of sustainable development at this particular university (i.e., Wrocław Tech), to understand the academic context in which it appears. The second goal was to enable subsequent research on a larger and broader scale (based on the examined initial state), as well as to develop and test the methods proposed by the authors, suitable for use in further research undertaken in the future. The authors are aware of the limitations resulting from the choice of such

a research method, namely superficiality, the inability to guarantee full explanations, but only an outline of the problem, or the low representativeness of the research material.

The conclusions formulated based on the desk research and interviews conducted are intended to improve the organization's processes. The process approach assumes that the organization's activities should serve to increase customer satisfaction by meeting customer requirements. Achieving this goal must involve identifying the links between the activities performed in the organization and the customer's requirements in all processes, not just at the end result stage. Isolating processes in an organization allows for easier monitoring, and obtaining data on organizational performance and improvement. In the case of universities, the customer is a wide range of stakeholders, including students, employees, or cooperating organizations. Thus, a process-side approach makes it possible to identify those activities that will not only ultimately, but at each stage, create added value for the university and improve the way it operates at the same time. The research undertaken by the authors was based on three stages (Figure 1).

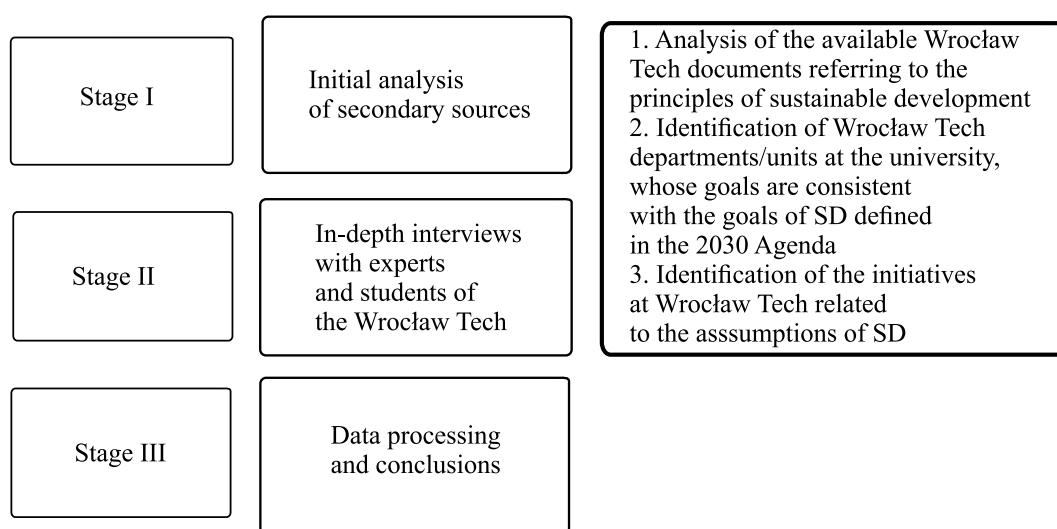


Figure 1. Stages of the research model

Stage I. Initial analysis of secondary sources, that is available university documents referring to the principles of sustainable development. This stage of research was supplemented with the identification of organizational departments/units at the university, the goals of which were consistent with the goals of SD defined in the 2030 Agenda. Two mentioned analytical approaches were additionally supplemented with an attempt to indicate initiatives at Wrocław Tech related to the assumptions of SD.

Stage II. Dedicated to the chosen experts and students of Wrocław Tech university and their perspectives.

Stage III. The analysis of the obtained data and the formulation of conclusions.

With the research plan constructed in this way, the second stage (the study conducted in a broad context of the university environment) requires a more detailed discussion. It aimed to analyze three areas in total:

- identification of SD aspects that can be implemented in the university environment,
- finding the motivation that students can follow in their implementation,
- detection of risks related to the entire implementation process as well as a discussion of the existing obstacles (whether on the side of the university, other students or organizations).

The research was conducted in October 2023 with the experts, and with the students in the final phase of the summer academic semester, i.e., June 2022. Therefore, the authors decided to conduct a qualitative study through in-depth individual interviews. This was dictated, on the one hand, by the high risk of an exceptionally low rate of return on the quantitative research and, on the other hand, by the will for a slightly deeper analysis of the assumed area than simply learning a superficial opinion.

People who take an active part in the life of the university were selected for the study because they do more than participate in the implementation of the basic curriculum. Interviews with experts who are also employees of Wrocław Tech were carefully planned. The interview period was October 2023. Four participants took part in the study:

- Expert 1. Head of the University's Social Responsibility team.
- Expert 2. Head of the community working on green transformation issues within the consortium of nine European universities UNITE!.
- Expert 3. Head of postgraduate studies with an innovative project management profile, including green project management.
- Expert 4. Specialist with many years of experience in quality management and sustainable development, supervisor of the student science club.

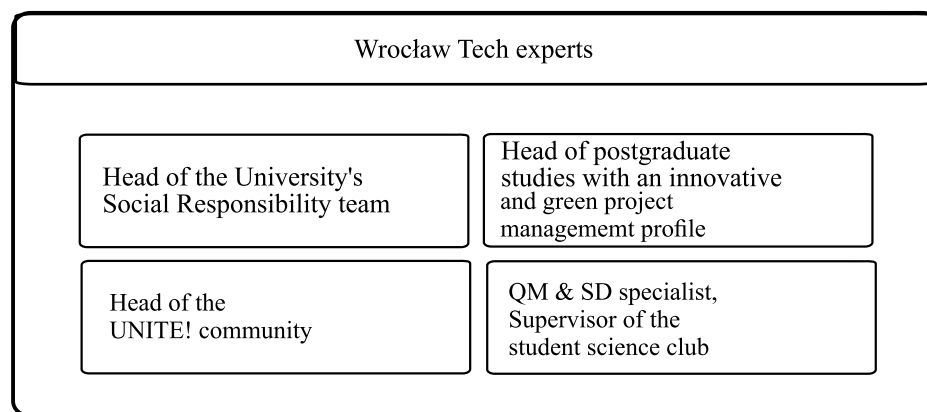


Figure 2. Interviews scenario. Experts ($n = 4$)

The structure of the interviews is presented in Figure 2. The study was conducted in the form of an in-depth qualitative interview. The questions for the questionnaire were developed based on both reports on sustainability issues at chosen universities and the authors' knowledge resulting from the literature review as well as the professional experience.

Referring to the research conducted with the students, the authors decided to select a research group of students from science clubs and the student government. There are several reasons for choosing such a profile of people. These people have experience in both operational and project work. Their opinions on the aspects of SD are based on genuine experience of work and not only guesses and gut feelings – as could be the case with so-called “passive” students. People working in these types of organizations refer to the strategy and planning of activities from a broad perspective – the perspective of the entire organization. For students, there is a substantial risk of receiving information solely from their personal, purely profit-oriented point of view. This would not be a problem if the planned implementations of certain aspects of SD concerned only a small group, but here the target group was much larger.

All interviews with the students were conducted according to a specific scenario. There are four different organizations. The relationship between the organizations connected by the arrow is as follows: The local department reports to the main students' government and receives a specific budget from it but it also has the right to vote (as one of several local departments) in the election of the main government. It is a subordinate unit (Figure 3).

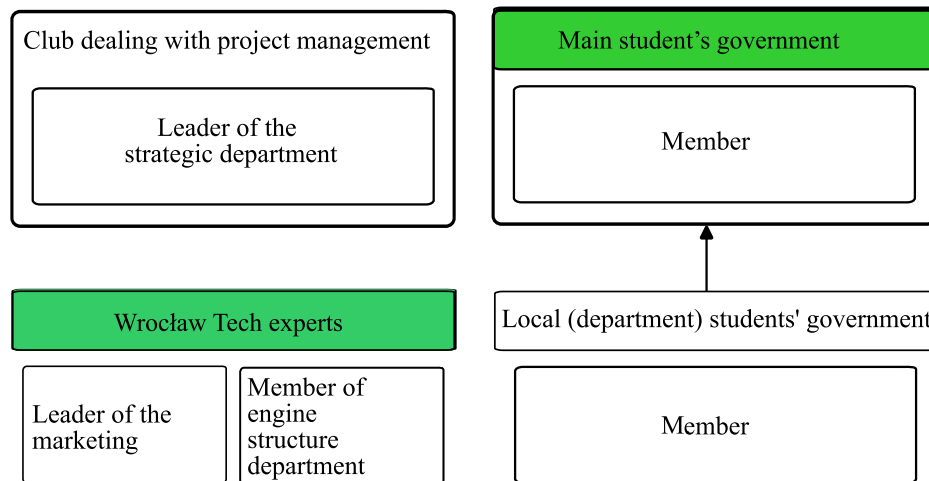


Figure 3. Interviews scenario. Students ($n = 5$)

Both scenarios were based on documents previously sent to the participants. The questionnaires contained the questions on which the discussion was to be based. In total, it was a list of more than a dozen questions. All of them concerned issues related to the achievement and implementation of sustainability goals by a university-type organization. The questions were structured and arranged in order from general to specific to first ask about the general perception of the concept of sustainable development, including in the context of the university. The next questions were related to specific actions of Wrocław Tech, students, and themselves in the process of implementing the SDGs. The final questions dealt with expectations and suggestions for the best approaches to problems and actions.

The document for students consisted of four parts: introducing oneself and one's role in a specific organization and short characteristics of the organization; questions about the knowledge of the SD idea and ideas for its implementation in their organization or some projects; identification of barriers; and what they would expect from the university as the main axis of such a program implementation.

In total, five people attended the part related to students. The profiles of people who took part in the survey and common responses will be presented later in greater detail. All people studied daily at the Wrocław University of Science and Technology. Due to the need to preserve the anonymity of the research, the presentation was limited to the general level only. The five people taking part in the survey represented four student organizations: two larger, with a university-wide range or even outside the university (green colour), and two operating at local faculties.

In practice, it came down to three separate entities (one is below another in the hierarchy). Even though some people in the name of the function have the title of a leader and others do not, each of them has a large share in the decision-making process in their organization and has a significant voice in building the organization's strategy.

The authors are aware of the limitations of the sample size and target group. As mentioned, the main intention was to conduct an exploratory study. Thus, the results obtained in the study serve as a basis for further in-depth research on a broader, representative group of respondents.

The value of the current preliminary study is the comparison of two groups of stakeholders, experts who are both practitioners and academics and students.

4. Results

4.1. First stage of the research model

The first stage results are divided into three phases:

- First, the characteristics of the documents available at Wrocław Tech and their relationship with the principles of sustainable development are presented.
- Second, a description of the departments that have a scope of activities which fully or partly cover the goals of the Agenda 2030 are described.
- Last, the initiatives that the university undertakes in trying to weave the assumptions of the SD concept into the everyday functioning of the organization are identified.

4.2. Wrocław Tech documents referred to SD goals

Among the most important documents of Wrocław Tech that relate to the assumptions of the 2030 Agenda, the following should be mentioned:

- 1. University Statutes, document from 5 July 2021.** In the Preamble to the statute, the role and mission of the university is indicated, which emphasises the values supporting sustainable development from a global perspective: “Conscious of the social role of universities, Wrocław University of Science and Technology builds lasting relations with the social and economic environment, striving for the highest standards of scientific work and education with a sense of shared responsibility for the quality of public life and the future of the Republic of Poland. Believing that all the University’s activities are carried out within its due autonomy, Wrocław University of Science and Technology shapes ethical attitudes based on truth, tolerance, equality, openness, and intellectual freedom, necessary for the sustainable development of the modern world” [38].
- 2. Development strategy of Wrocław University of Science and Technology 2016–2020.** It is worth noting that works on the new strategy of the Wrocław University of Science and Technology are currently being finalized. According to the rector, Prof. Arkadiusz Wójs, all these activities are for the purpose of building an open, modern, European university, but one that is lively, joyful and young in spirit, mind and attitude towards work.

The points of the previous strategy include those that are of particular importance for the three pillars of SD: economic, environmental, and social pillars. They are within the target model of Wrocław University of Science and Technology –Synopsis:

- p. 6.** Wrocław University of Science and Technology offers excellent conditions of studying. It provides modern laboratories and teaching techniques, creates opportunities for the development

of interests and relationships between the master and the student, and will also provide good living conditions.

- p. 8. Wrocław University of Science and Technology actively participates in research projects of a European and global nature and adapts world-famous solutions to regional and national conditions.
- p. 9. Wrocław University of Science and Technology is a key part of the regional innovation system. It supports the incubation of small innovative companies, stimulates the development of industrial clusters, and cooperates with the regional administration.
- p. 12. Wrocław University of Science and Technology cultivates classic academic structures, building them with flexible task systems. The best organizational practices of the best universities are adapted to their own operating conditions.
- p. 14. Wrocław University of Science and Technology cares for maintaining a high level of adaptability. It does not allow for procedural overstrain and enforces quick circulation of decisions. Maintains adequate financial reserves.
- p. 16. Wrocław University of Science and Technology systematically builds the image of the University as modern and dynamic, and at the same time close to people. Such positive recognition serves to attract students and assignments and build influence.
- p. 17. Wrocław University of Science and Technology is firmly embedded in a compact campus in the center of Wrocław. This demanding location requires perfect functionality and high aesthetic standards, which affects the promotion of the University's brand.
- p. 18. Wrocław University of Science and Technology recruits first-class employees and students in competition with international corporations and universities. He compensates for his weaker financial position with social capital. Wrocław University of Science and Technology is a good, though demanding, place of study and a good, though demanding, workplace' [32].'

3. Rector's reports for the years 2002–2019. As public documents, these reports- contain information that is crucial from the point of view of the university and its stakeholders. Everyone has an insight into them, which has a positive effect on the transparency of the activities undertaken by the university.

4. Codes of Ethics. The Wrocław University of Technology Student Code of Ethics 2020 regulates the rules of student ethics adopted by the academic community at Wrocław University of Science and Technology.

The Code of Ethics for Employees of Wrocław University of Science and Technology 2016 fulfills a similar role to that of the previous Code.

5. Financial report of the Council of Doctoral Students of Wrocław University of Science and Technology for 2019 and 2020 and the Financial report of the Board of the Students' Parliament and the Central Commission for Financing student activities for 2018. Both documents play an informative role that, similarly to the previously described documents, may increase the transparency of the activities of the these university self-government organizations.

6. The study regulations (from 1 October 2022). The study regulations (effective from 1 October 2022), which is a mandatory document for students and, therefore, within the context of the

implementation of the principles of SD, is of a social nature, regulating the issues of university stakeholders.

It is worth paying attention to some points of **paragraph 8**, which mentions students with special needs:

1. The University provides students with special needs with conditions to participate in the education process.
2. The students referred to in paragraph 1, in matters not included in the Regulations, may apply for the adaptation of the organization and implementation of the education process, including the conditions of study, to the type of needs. The detailed conditions for adjusting the education process to the needs of the students referred to in paragraph 1 are specified in separate regulations of the University [39].

7. Equality Plan for Wrocław University of Science and Technology. “The main goal of the Equality Plan for Wrocław University of Science and Technology is to promote equality and diversity as those principles that enable all people working and studying at the university to welfare, develop and use their potential and deepen their autonomy of thinking and acting.” At the same time, they increase the security, empowerment, and autonomy of the entire academic community. The adoption of the plan complements and extends the scope of pro-equality and anti-discrimination activities, which implement the commitments made by the University of Technology in connection with the European Commission awarding it with the HR Excellence in Research logo. It is also intended to implement the recommendations of the European Commission regarding the implementation of the Gender Equality Plan in research units [22].

8. Social Responsibility Report of Wrocław University of Science and Technology 2017–2020 [40]

This is the first Wrocław Tech report on the university’s social responsibility. In 2017, Wrocław University of Science and Technology signed the University’s Declaration of Social Responsibility. This means that it undertook to adhere to 12 principles written in the declaration that are directly related to SD.

9. Appendix to ZW 110/2020. Regulations of the Sustainable Development and Climate Protection Center – SDaCPC. SDaCPC mission:

- Development of competencies, skills, and knowledge in the field of climate protection;
- Striving for development among the academic community, taking into account the ideas of sustainable development and climate protection.
- Stimulating pro-environmental attitudes and behavior.
- Creating ideas for the implementation of projects and scientific research, the didactic process, and the training of competent specialists and scientists, creating a new dimension of the economy and life with respect for the goods of nature.
- Development of technology, cooperation with the economic and administrative environment, and other research centers in the country and abroad, whose activities are aimed at developing modern solutions to prevent and minimize the effects of environmental pollution, at the same time increasing the comfort and quality of human life.

- The Center, as a unit that is to serve the development of the academic community in public space, is also to build the image of an Open and Sustainable University –being a leader in this field.

The tasks of the Center include, in particular:

1. Integrating the University's scientific community around research issues related to the implementation of sustainable development goals, including climate protection.
2. Organizing cooperation with scientific units, industry, administration, and other units working for the implementation of the goals of sustainable development, including climate protection.
3. Organizing and carrying out research, and educational activities as well as technical and training services in the field of sustainable development, including climate protection.
4. Promotion and dissemination of the achievements of science and technology in the field of new technologies, structures, software, etc., in particular, those created at Wrocław University of Science and Technology, which may affect the implementation of sustainable development goals, including climate protection.
5. Promotion of issues related to the idea of sustainable development and climate protection, primarily among employees and students of the Wrocław University of Technology and residents of Wrocław and Lower Silesia [36].

10. Eco-Declaration of Academic Organizations

After consulting with academic organizations and experts, Wrocław Tech developed an eco-DECLARATION project. It aims to promote pro-ecological attitudes among members of academic organizations that may become an inspiration for students, doctorates and organizations representing them to change their attitudes to be more pro-environmental [15].

11. Resolution of the Senate of Wrocław University of Science and Technology No. 157/11/2020–2024 establishing the Center of Teaching Excellence + appendix with regulations [37]

The main goal of the Center is to “develop and support activities for the excellence and modernization of education at first and second cycle studies as part of the Doctoral School, postgraduate studies and other forms of education at Wrocław University of Science and Technology. In addition, the Center also cares about disseminating the best teaching practices at the University in the context of model world solutions.”

12. Strategic goals effective from 1 January 2016 [28]

In addition to the role of these goals and measures in verifying the degree of their implementation, they indicate the involvement of universities in the affairs of the region or a wider group of stakeholders. Thus, they are in line with the assumptions of the SD concept.

It should be borne in mind that the identified documents do not fully exhaust the publication base relating to the assumptions of the concept of SD. This analysis thus needs to be completed. However, based on the research using secondary sources, it can be concluded that this subject is present in various aspects of the organization's documents.

Figure 4 which is a summary of the analyses of secondary sources, presents a comparison of the described documents with the goals of the 2030 Agenda.

	WROCLAW TECH DOCUMENTS	1 POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9 REDUCED INEQUALITIES	10 SOCIAL JUSTICE AND INCLUSIVE GROWTH	11 RESPONSIBLE CONSUMPTION AND PRODUCTION	12 CLIMATE ACTION	13 LIFE BELOW WATER	14 LIFE ON LAND	15 RESPONSIBLE CONSUMPTION AND PRODUCTION	17 PARTNERSHIPS FOR THE GOALS
1	University Statutes, document from 5 July 2021																
2	Development strategy of Wrocław University of Science and Technology 2016–2020																
3	Rector's reports for the years 2002–2019																
4	Codes of Ethics																
5	Financial report of the Council of Doctoral Students of Wrocław University of Science and Technology for 2019 and 2020 and the Financial report of the Board of the Students' Parliament and the Central Commission for Financing student activities for 2018																
6	The regulations of studies (from 1 October 2022)																
7	Equality Plan for Wrocław University of Science and Technology																
8	Social Responsibility Report of Wrocław University of Science and Technology 2017–2020																
9	Appendix to ZW 110/2020: Regulations of the Sustainable Development and Climate Protection Center—SDaCPC																
10	ECO-DECLARATION of academic organisations																
11	Resolution of the Senate of Wrocław University of Science and Technology No. 157/11 / 2020–2024 establishing the Center of Teaching Excellence + appendix with regulations																
12	Strategic goals effective from 1 January 2016																

Figure 4. SDGs the matrix

After the initial analysis of secondary sources, it can be concluded that the university has at least a dozen documents that contain direct or indirect references to the principles of SD. As a signatory to the University's Social Responsibility Declaration (DSOU) of 2017, the university undertook to comply with 12 of its principles and has made every effort to ensure that they are reflected not only in the developed documentation but also in the activities undertaken in practice. This can be seen in an analysis of the number and nature of initiatives or the number of entities in the organizational structure of universities that carry out tasks related to SD as part of their activities. As a result of the analysis, it can be concluded that in total the documents cover almost all, i.e. 15 of the 17 SDG objectives. Ultimately, however, it would be worth including mentions related to the concept of sustainable development and social responsibility in each separate document, as far as possible, and the thematic scope.

It should be noted that the above list shows a declarative link between the Wrocław Tech documents and the individual objectives of the SDGs. Further, an in-depth research is needed to verify the practical application.

4.3. Wrocław Tech initiative related to SD

The research of secondary sources was also related to identifying initiatives and entities with an area of operation that fits into the SD concept's assumptions. Starting from the first group, one of the Wrocław Tech initiatives in support of students is the adoption of rules for the granting of scholarships. Students at the Wrocław University of Science and Technology may apply under certain conditions for various types of scholarships. Among other social scholarships, an application could be for a scholarship for disabled people, a Rector's scholarship, a Rector's scholarship for doctoral students, the Student Scholarship Program of the City Council of Wrocław or a scholarship for academic performance from the Wrocław University of Science and Technology's scholarship funds. The choice is wide.

Another initiative that Wrocław University of Science and Technology has undertaken in partnership with the association for equal access to education Your New Opportunities is the implementation of

a project to improve access to higher education. The main goal of the project is to improve access to Wrocław Tech for people with disabilities by eliminating barriers to accessibility for students, including Ph.D. students with disabilities.

A form of involvement by Wrocław Tech's stakeholders, that is, employees and students, is also the tutoring program that was introduced in 2020. There are two types of this program: 2.5-year tutoring for exceptionally gifted students and one-semester tutoring for all interested students. Tutoring supports the broadly understood development and, above all, the academic competencies of young people.

An initiative that needs to be mentioned is Student Volunteering, which involves approximately 10% of students. The volunteering activities include such actions as Give a Sweet for a Kid, or Midnight Lettering – a cultural and social project, inaugurated in 2017, consisting in writing letters to enterprises with a request to support the scholarship fund for students with disabilities, or the fFamily picnic Students for Children, which has been organized since 2013 during the international rowing regatta, the Odra River Cup, on the boulevard of the Wrocław University of Technology. The event is aimed at children of employees of Wrocław University of Science and Technology and residents of Wrocław.

Quite a new initiative is Polytechnica Nova, a competition addressed to employees and students of Wrocław University of Science and Technology. The first edition of the project took place in 2022. Anyone can participate by submitting an idea that would allow the university to develop it in an innovative and friendly way for all university stakeholders as well as fit into one, two, or three of the following areas:

- development of didactics,
- new technologies,
- university's social responsibility.

The best projects are implemented.

4.4. Wrocław Tech entities implementing the assumptions related to SD

Within the third group, entities that have activities related to the issues of sustainable development include:

1. Center for Sustainable Development and Climate Protection (already mentioned in subchapter 4.2); the center is fully dedicated to the SD goals.
2. Student department and self-government – supports students in their activities.
3. Department of Accessibility and Support for People with Disabilities – for over a dozen years, Wrocław University of Science and Technology has been implementing the idea of a university without barriers, open and friendly to young people with disabilities. The main aim is to create a space in which students can feel safe and unhindered to pursue the educational program.
4. Psychological clinic for students of the Wrocław University of Science and Technology provides psychological support for students.
5. Psychological Consultation and Mediation Center provides support under a joint project of the Wrocław University of Technology and Your New Opportunities, the Association for Equal Access to Education. The Center offers support for students who have various problems with adaptation to a new place, conflict resolution in relationships, setting development goals, which is called student coaching, problems during exam sessions, or mental health crises.

6. Innovation and Business Center – university-wide unit supporting the cooperation of Wrocław University of Science and Technology with business.
7. GEO-3EM research center – a research and technology transfer center unique on a European scale in the sustainable use of raw materials and energy from various sources that is focused on issues related to environmental protection.
8. Academia Iuvenum – an elite group of young scientists who hold a term of office for two years. Its task is to undertake various initiatives for the benefit of the university, create a platform for the exchange of scientific ideas, and enable young scientists to express opinions inside and outside the university.

The mentioned institutions that directly or indirectly implement the SD assumptions are only selected examples of organizational units at Wrocław University of Science and Technology. This analysis would need to be expanded in the future. Table 1 presents the results of the first stage of the study.

Table 1. Results of the first stage of research

	Environment of events	Learning in the environment	Documents environment	Student environment
Present or upcoming opportunities	<ol style="list-style-type: none"> 1. Presenting various SD ideas during open events organizedd by Wrocław Tech (to external and internal stakeholders) 2. Providing access to many initiatives taking place at the university for free – lectures, conferences, etc. 3. Cooperation with the best companies in the regional and global market 	<ol style="list-style-type: none"> 1. Possibility to take an individual course of studies or enter the tutoring process 2. Intensive support for scientists and people preparing for this role – grants, subsidies, substantive care 3. Development of study programs in terms of current market requirements 	<ol style="list-style-type: none"> 1. Building the image of a transparent university through open access to a significant part of the documents 2. Preparation of reports by special commissions for equality, social responsibility, and accessibility 	<ol style="list-style-type: none"> 1. Exchange of knowledge and skills between students as part of work in science clubs 2. Facilitating the opportunities for students to undertake voluntary work
Perceived barriers	<ol style="list-style-type: none"> 1. Financing events focused on meeting the needs of external, not internal, stakeholders 	<ol style="list-style-type: none"> 1. Declining number of university employees 2. Moving towards the “elitisation” of Wrocław Tech – only for the most outstanding students 3. Too little expenditure on the didactic part of the education process – more spent on research area 	<ol style="list-style-type: none"> 1. No current activities on the topics described in the special reports from previous years 2. The risk of the rapid expiration of information in the reports due to the short period of their authors’ activities on a given topic 	<ol style="list-style-type: none"> 1) No clear rules on awarding funding for specific types of student initiatives 2. Temporary lack of demand for a given initiative organised by students

The barriers that may occur in the implementation of SD activities may be related either to institutional issues such as the lack of specialized units dedicated to the implementation of sustainable development goals with working teams, or to organizational issues, including but not limited to the lack of procedures for the collection, flow, or processing of information related to the implementation of sustainable development goals.

4.5. Second stage of the research

The results from the second stage of the research will be presented according to the following scheme:

1. Interviews with experts, employees of Wrocław Tech – on the perception of sustainable development in general and in the context of universities' implementation of the goals of the 2030 Agenda.
2. The actions that student organizations can take towards the idea of implementing SD.
3. Finally, their expectations towards the university as a managing entity.
4. Differences in the perception of the issue of SD at universities by experts and students.

4.5.1. Experts

Expert 1. Head of the University's Social Responsibility Team

According to the Expert, the concept of sustainable development based on three pillars: environmental, social and economic, can be seen through the prism of the key documents defining it. These are the Brundtland Report and the 2030 Agenda. Sustainable development must take into account diversity, be aimed at supporting and equalizing opportunities with concern for people and the environment.

For a type of organization such as universities, a strategic approach is particularly important for implementing SD principles. When asked to identify the three to five, in her opinion, most important SD goals that universities should pursue, the expert noted that she is far from valuing goals. Unless one is talking about an obligation that stems from current or upcoming regulations. Examples of SD goals that universities should pay attention to, according to her, are: SD4: lifelong learning (both in teaching offerings externally and professional development of employees) and goal SD7: energy partly from renewable sources.

When asked about valuable examples of initiatives implemented by universities, the expert cited as particularly good ones those included in subsequent editions of Good Practice Catalogs¹. Turning to the description of Wrocław Tech's activities in the area of SD, the expert noted that a report has been prepared in which the university not only indicates initiatives but also assigns each of them to a specific goal within the framework of Agenda 2030². She added that some of the activities listed in the report are cyclical. Some of them are modified, and still others are abandoned. Significantly, a survey of the university community found difficulties in identifying activities that coincide with, among others, SDG2: Eradicate hunger, achieve food security and improved nutrition, and promote sustainable agriculture, and SDG5: Achieve gender equality and empower women and girls.

As a beneficiary of university programs that fall within the SD area, the Expert is satisfied with the opportunity to participate in training initiatives, i.e., courses, webinars, or motivational programs. This scope, in her opinion, is sufficient.

According to the Expert, individual groups of university stakeholders can support the implementation of SD goals in the organization with their activities. They do not always do so consciously linking the activities they undertake to the goals of Agenda 2030. Among the activities mentioned are those that refer to SDG 4: good quality education in the form of popularization of science, or to SDG1: an end to poverty, in the form of collections for victims of various disasters.

¹<https://www.gov.pl/web/fundusze-regiony/grupa-robocza-ds-spolecznej-odpowiedzialnosci-uczelnia>

²<https://sou.pwr.edu.pl/aktualnosci/details,1.html>

In the case of scientific and teaching staff, support for the achievement of SDG 4: good quality education and SDG 9: innovation, industry and infrastructure can be indicated. Administrative staff, on the other hand, can support the implementation of SDG12: responsible consumption and production by developing and supporting the green procurement process.

It is noteworthy that in the case of Wrocław Tech, changes can be noticed in the form of increased awareness in the context of knowledge of the assumptions of the concept of sustainable development. According to the Expert, this has been fostered by, among other things, the establishment and operation of a unit dedicated to SD issues, the Center for Sustainability and Climate Protection (CZRiOK). It will be possible to say about Wrocław Tech that it is a sustainable university when the organization inspires action while being open to it. According to the Expert, it is advisable to develop and implement a unified activity reporting system, based on the guidelines formulated earlier on how to report. This approach will make it possible to diagnose the current level of sophistication the university is at, which in turn is a good start and the basis for developing a strategy.

Expert 2. Head of the community working on green transformation issues within the consortium of 9 European universities Unite!

The Expert serves as the leader of the Green Transformation in Ukrainian Universities project, implemented under the NAWA-funded Solidarity with Ukraine program. This is an offshoot of activities within the Unite! network. These activities began in 2022 with the preparation of an activity plan for part of the Erasmus+ Unite! project within the then called work-package, now called the community. The themes of the activities are related to green transformation in Unite! universities. The Expert appreciates the opportunity for his involvement in the SD goals, which, in his opinion, provides an opportunity for a broader view of sustainability issues.

According to the Expert, universities can and should play a key role in achieving the Sustainable Development Goals. The most important areas of such activities are: conducting research to support the implementation of the SD goals, supporting and promoting innovation activities, education and building awareness related to SD areas, cooperation, including partnerships with the environment, community involvement, incubators for green innovations, efforts to create a green campus, initiation of cultural and social change processes.

The expert, answering the question of what is particularly important from the point of view of the process of implementing SD principles in an organization such as a university, answered that building awareness of the academic community in terms of sustainable development. This is done by promoting and supporting activities that integrate different stakeholder groups in sustainability efforts.

According to the Expert, universities should first focus on implementing SD4: by providing inclusive, high-quality education for all, as well as by promoting lifelong learning. For example, as part of the implementation of SD4, there are short training programs in the area of green transformation for female students (micro credentials) being developed by universities, including Wrocław Tech, or the NAWA GTUA project's summer school and online education courses.

Another goal prioritized is SDG13: Action to address climate change and its impacts. These should be undertaken as a matter of urgency. An example of activity in the area of the goal is the promotion of student innovation in the form of the organization of a competition for the best business idea, ABI 2023,

where a special evaluation criterion has been created regarding the link to the Sustainable Development Goals.

Other important goals are:

- SDG12. Responsible Consumption and Production, where special emphasis should be placed on ensuring sustainable consumption and production patterns.
- SDG17. Partnerships for the Goals – here, in particular, implementation measures should be strengthened and the Global Partnership for Sustainable Development should be revived,
- SDG9. Innovation, industry, infrastructure. Here, innovation should be supported, as well as the construction of stable infrastructure and the promotion of sustainable industrialization.

According to the Expert, when asked how the selected SD goals are being implemented by Wrocław Tech, the academic community is mainly based on the enthusiasm of green transformation leaders. As such, they are more inspired by those who work for the academic community or the university environment. Inspiration coming from the institution itself plays a lesser role in this. Most effects of such activities can be seen on the university campus. These are efforts to create a local ecosystem in the city. In the aspect of research and education, one gets the impression that most of the activity in the field related to the realization of SD goals is generated by the university environment, such as by the requirements of European programs like Erasmus+.

The expert does not see the need to assign specific goals to specific stakeholder groups. In his opinion, these should be activities that integrate representatives of different stakeholder groups around a specific SD goal. However, it is necessary to take advantage of the potential that lies in the diversity of the composition of groups implementing SD tasks. This diversity allows for changes in the awareness of various stakeholder groups regarding the need to achieve SD goals. It is also directly the implementation of SD 4 in the academic community.

In the context of Wrocław Tech's activities, the Expert suggested increasing the scope of university involvement in activities relating to the challenges of green transformation. In his opinion, the current experience shows that there is a need for a comprehensive development plan/vision for the development of such activities at universities. In particular, in terms of work on research of an interdisciplinary nature and interdisciplinary education for sustainable development.

According to the Expert, a prerequisite for defining a university as sustainable is the introduction of institutional mechanisms for evaluating the activities of the academic community in research and development and education in terms of supporting the achievement of SD goals.

Expert 3. Head of postgraduate studies with an innovative project management profile including green project management

The Expert points out that a university moving toward sustainable development is first and foremost a people-oriented entity. In particular, as a public entity, it should pursue SDG4 (education) by enrolling as many students as possible – not limiting the prospect to only outstanding people. The problem, however, is the statutory limitation – 13 students per teaching staff member. This has its justification – not overloading employees with duties, but with the decreasing number of teaching staff, it creates a problem. And according to the Expert, it lies largely with the university. It should be heavily involved in

activities that promote staying at the university after a master's degree to do a PhD and start educating other students.

Regarding cooperation for SD goals (SDG17), the Expert put it this way: "The university as an entity/institution is a catalyst for a reaction involving science and business. Here the Expert has in mind, among other things, research and development projects created in cooperation between various companies and universities. In this context, another barrier was mentioned. If the university has a problem with "going outside", establishing cooperation with external entities, it will be very difficult for it to have any broader impact on the achievement of SD goals. Focusing solely on "internal" activities may be a good idea, however according to the Expert, in the long run, it may not bring such tangible results. Especially if these activities are not supported by a long-term strategy.

The Expert pointed out how foreign students approach sustainability. It is primarily about awareness. In conversations with students from Asia, Spain or Turkey, the word "sustainable" is often mentioned. However, the same cannot be said for students from Wrocław Tech. According to the Expert, this topic should appear to a greater or lesser extent, depending on the field of study in the curriculum – whether through specific subjects or mandatory classes.

On the topic of student organizations, the Expert mentioned that if the university is to be a bridge between science and business towards sustainable development, it should enable and facilitate student organizations to establish such cooperation. On the one hand, this can result in real projects, on the other hand, it will redirect thinking from "what I can do in the organization" to "what our organization can do with someone else." This, of course, requires a certain plan and resources, which, as the Expert pointed out, is not obvious, and students are often expected to act in exchange for nothing and on their own.

The Expert also pointed out the psychological aspect of university work. A functioning psychological counseling center for students and employees is a step towards focusing not only on human performance but also on the emotional and experiential layers of employees and students. This should be a standard not only at Wrocław Tech, but also at other universities in Poland and around the world.

Expert 4. Specialist with many years of experience in quality management and sustainable development, supervisor of the student science club

According to the Expert, it is worthwhile for universities to focus primarily on the environmental aspects of sustainability. This is because they are easy to measure, there are already developed guidelines and metrics, such as what green buildings should look like or how to reduce gas emissions. However, according to the Expert, this should not be the target area that universities as institutions should deal with. The target area should be the social aspect. However, it is much more difficult to measure. It is difficult to choose the right metrics to study how a university influences the formation of young people's minds in terms of attitudes and behaviour. Nevertheless, the university should internally work on this aspect.

The Expert pointed out the importance of achieving goal SDG4 (education) by increasing attention to outstanding, above-average scientists³, as they are the ones who largely influence the "global market/business." Another important goal for universities, according to the expert, should be cooperation for SDG17: partnerships for goals. Academic staff should partner with business, because it has a significant

³<https://pwr.edu.pl/uczelnia/academia-iuvenum>

influence on what happens globally in terms of achieving the SD goals. However, such a partnership faces a barrier in the form of egocentrism on the part of academics themselves, which is worth countering.

The Expert pointed out that the benefits of working at a university are, unfortunately, mainly due to Polish labour law, and not necessarily due to the activities of the university itself. This is about non-wage employee benefits. However, something is being done in this area, changes are taking place. First, open lectures and talks are being organized for all interested parties, regardless of degree, department or field of study. This is true of most such events at Wrocław Tech. Second, a group within the “Leaders of Accessibility” program has been established and is active. This is a program that supports all willing academics in the teaching process conducted for people with various types of disabilities. This program covers the entire university, and this, according to the Expert, is a step towards equal treatment and transfer of knowledge to all students. Regarding the different groups of people at the university (employees, students), the Expert pointed out that the initiatives taken by employees (towards the SD goals) in the future will probably be mostly driven by their duties and a standardized framework of conduct, defined by regulations. Thus, these will be activities consciously aimed at achieving the SD Goals. Of course, it should be emphasized that bottom-up initiatives continue to emerge. An example is the Pink Box at Wrocław Tech⁴, which contains hygiene items for women during menstruation. As for the students, in this case, it will be their unconscious actions, not aimed at SD goals. However, still consistent with the tenets of the overall sustainable concept. Their involvement can be seen, for example, in the action of joint letter writing⁵ or charity actions. According to the Expert, Wrocław Tech can be called a sustainable university when everyone feels important at the university. With such a designation, the question of how to verify this state naturally arises.

Research with experts provided insights into the implementation of the SD goals from multiple perspectives. The authors would like to summarize them in two parts: those related to the university as an institution and those related to Wrocław Tech. However, something that relates to both parts is the issue of strategy and formalization of checking how the university is meeting the goals previously set by someone/ self in the context of SD. Everything the university does needs to be part of a conscious and described strategy (both long and short-term) that can be checked in a standardized way in terms of how it is implemented over time.

Turning to the university as an institution, experts first raised the question of what goals it should pursue. The one most often mentioned is the one related to education, SDG4. The statements referred to the issue of enrolling as many people as possible in the university. The problem in this area is that there are too few academic staff, and the efforts taken to change this are rather insufficient, according to experts. This may be due to the strong emphasis placed on “lifelong learning,” and therefore the focus on the university’s current staff. There is nothing undesirable about this, but allocating too many resources to this activity may hinder the goal of increasing the size of the academic staff in general.

The theme of partnerships for goals (SDG17) resonated strongly in almost every interview. Universities should leverage their connections with business to enable both researchers and students to make a real impact on sustainable actions in the world. Sustainability awareness has been highlighted as something

⁴<https://pwr.edu.pl/uczelnia/rozowa-skrzyneczka/>

⁵<https://nocnelistowanie.pwr.edu.pl/>

that a university should care about. However, it becomes problematic to measure the growth of awareness over time. It would be necessary to create or collect a set of indicators for this purpose and carefully observe the process of changing attitudes, knowledge or attitudes among the university community. An area that is much easier to measure is the environmental aspect of the university, primarily its buildings. Since some guidelines have already been created on this topic, this is a good starting point. Established measures can be monitored relatively easily and thus increasingly ambitious goals can be set, including in cooperation with the business.

The experts also commented on the Wrocław Tech itself. They pointed out the apparent differences between the general awareness of SD among students from abroad and those from Poland. Students at the Wrocław University of Science and Technology are not yet familiar enough with the topic to be able to discuss it, find solutions to problems posed in the context of SD, etc. Short courses/training courses conducted as part of the curriculum could be an answer to this problem. Student organizations could be provided with individual training units prepared specifically for them depending on the subject of their work. Attention should also be paid to the egocentrism of scientists as a potential barrier to achieving the Sustainable Development Goals. It is worth promoting a culture of cooperation and a team approach to research and projects. Benefits for university employees should come not only from legislation, but also from the university's activities. This could be competence development and career development support. The topic of bureaucratic workflow was also raised.

According to experts, it is worth considering whether the current procedures are necessary and whether they can be simplified, both for employees and students, to increase the efficiency of the university. Sustainability goals are often externally imposed, such as participation in ERASMUS+ or UNITE! However, the university can also develop its initiatives in this regard by promoting sustainability internally. This process has already begun, both among students and employees. It is worth taking advantage of the potential and strengthening current and upcoming initiatives. It is good to note positive activities such as “accessibility leaders”, “night listings” and open lectures available to both employees and students. These initiatives promote equality and accessibility. It is worthwhile to continue these activities, which are already having an impact on the Sustainable Development Goals. Their development and promotion can make the university a place where sustainability is a priority, both academically and socially.

4.5.2. Summary of interviews with students

Environment. The engineering clubs that produce something, be it machines or other devices, are in the lead when it comes to the implementation of the environmental postulates of SD. They can give up some construction elements that are unsuitable for the natural environment, give up ordinary fuel for ecological fuels, or focus on the development of electric motors (this is happening in a surprisingly dynamic way at the university). After activities of this type, scientific clubs expect, for example, additional points in competitions (or higher consideration by the university in choosing a strategic club) and advertising of the club in connection with their involvement in the protection of the natural environment. Some of the clubs are funded by universities, but such activities can also be helped with support from external sponsors –who also count on being able to sign up to promote environmental protection. The problem here is the costs. Resource costs arise because greener construction is simply more costly, and it takes time to find replacements for various parts of the construction. Therefore, expectations of universities

are primarily related to costs and promotion. If the club decides to promote universities in areas external to the universities in one of the mentioned ways, it counts on help in covering the excess costs related to these activities. The second part is the usual exchange of something for something: the club promotes the university through its activities, and the university promotes the club. This is one of the solutions that does not cost the university very much, and advertising content produces itself.

The students themselves are very interested in entering sustainable engineering solutions overall. For leaders, this is an excellent path to newer, more challenging projects – where the increase in staff knowledge and skills is very significant. On the other hand, people dealing with technical issues “from the inside” are very willing to engage in these activities, but they encounter a barrier in the form of a lack of know-how. There is no one to develop this knowledge, and following a hunch or a pure theory taken from books or the Internet cannot be an option when serious international competitions are involved and every zloty and minute counts.

Sustainable project management (SPM) – projects and long-term benefits. Another area of action is sustainable project management and the targeting of long-term benefits for the organization. Here, the main activities are paying greater attention to planning and drafting of a flowchart (whether for a project or an organization), creating business summaries, and increasing the resource effort to train leaders. The greatest profit from these activities accrues to the organizations themselves and to a lesser extent to universities. Of course, it is important to universities that student organizations function as vigorously as possible. It is best if they raise the scope of work higher and higher – better organization of events at the university and better internal management. This increases the prestige of the university compared to others and encourages potential future students to come to this university. What the club itself can gain has already been mentioned. Raising the level of management knowledge will contribute to a better growth context for the organization, and it will be able to gradually increase its scope of activity. Better management also reduces the possibility of killing prosperous and future-oriented projects. Thus, this is a situation in which a student organization can gain exactly what the university would like it to gain.

The immediate problem is that the training of management staff in research clubs and student organizations has shortcomings. This is due to negligence both on the part of the organization and the university itself, which does not pay direct attention to it. It is the responsibility of people who are already in managerial positions; but in a context in which working in clubs is voluntary and is also something extra to the course of studies, few people can do it. Another issue is very short-sighted work prospects. Few people wonder what will happen in the organization in a year or two, let alone think about the activities that shape this future situation. To meet such expectations, the main activities are primarily training and knowledge transfer, such as the organization of workshops by universities for organizational leaders and the allocation of a specific budget for the clubs for training in sustainable management. But there is also a risk. There is no guarantee that resources allocated to the process of training will turn out a high-quality management crew. Arbitrary actions may be a better solution, such as compulsory training for a certain group of people in managerial positions.

Regardless of what organization, large or small, students come from, there is a desire to improve their skills, maybe not so much leadership skills, but organizational ones. The authors are talking here about planning, allocating resources, and managing those responsible for a given matter. The difference,

however, is that to meet everyone's needs, at least two levels of training are needed – introductory and advanced. At this point, the university allows to take part in training with student trainers (these are usually graduates of the organization with coaching experience). However, the training is adapted to the average level of the group, so it is difficult to find a golden spot in terms of content. On the other hand, conducting training for small groups is perceived as a waste of trainers' resources (time, and preparation specifically for the group), and combining people from different organizations is perceived rather negatively.

Helping “poor” organizations. The respondents also paid attention to the actions taken towards student organizations that are in a demanding situation. Most often, this is about poor organizational management or low organizational culture. This topic was discussed during the study due to its relationship with SD –one of the biggest wastes is the closure of an organization that is not doing well without asking what is wrong. Unfortunately, this is the mentality at the university. Clubs are being closed without much reflection on the reason they are now in this situation. The university does assist the organization that deals with entities that need help in carrying out fundamental changes in the organization. However, the biggest barrier that organizations face is the sheer shame of using such help.

According to respondents who agree on this issue, it results from the leaders' approach to managing the organization. Leaders admit that they often make certain decisions without taking into account the group's opinion, but follow a predetermined plan. The authors do not want to clearly state that such an approach is bad because such behaviors often allow the organization to overcome crises or gradually move towards success. Unfortunately, this often negatively affects people who are not in the management staff. Their voice is not taken into account when reporting problems. They often hear the following statements: “It takes time”, “There are problems now, but they won't be there anytime soon”, “It's all the natural order of things.”

Local communities. The last aspect of SD is the integration of local communities –in this case, the student community. The university organizes many activities for the entire cross-section of students in many fields, ranging from open scientific seminars, conferences and cultural events to joint trips organized by faculty self-governments. From the point of view of student integration, it is the last of these that seems to be the most important. Joint trips are not only about spending time together but also include many interesting pieces of training and activities strictly aimed at learning about each other. This inspires people to notice something more than just science in their studies – another person. The university benefits from this type of activity because these trips are not used by people from one student organization but by “random” people. Thus, they do not integrate people inside an organization but people in the university in general. Of course, this has advantages and disadvantages. It is worth considering whether, from the university's point of view, it is better to help organise such general university activities or whether it is better to allocate resources between organizations so that they deal with this type of event internally.

A noteworthy issue is the influence of the size of the student organization on the possibility of introducing any internal activities based on the SD idea. It seems obvious that universities care about investing in organizations that they can boast about the most or that promote them the most due to the range of their activities. Introducing SD aspects to operational activities or projects simply costs (money or time) and obtaining such funds is not easy. Especially when you are not one of those biggest clubs. Smaller

clubs must often break through many administrative and bureaucratic procedures with people who simply do not know each other. And if it is not easy to get financing for ordinary activities, then it is much less so to support an idea of SD or SPM that is only a promise of something. Similarly, in hierarchical organizations (such as student councils), even if the entire institution receives funding, local governments have big problems obtaining it. The entirety of this pyramid creates the image that many organizations are trying to develop, but they cannot compete with the largest organizations.

The problem of financing is basically the only postulate where respondents are divided into two opposing sides. On the one hand, there are people from large organizations with successful projects who generally do not struggle with the problem of financing. Of course, their budget is not unlimited, but their resources are incomparable to those of smaller organizations implementing their first or small projects. There is the other side – funding for small organizations should be increased at the expense of large ones. The real problem here is the stalemate. Even increasing the general pool of money for student organizations will not help, because firstly, the percentages will be distributed similarly (“They still have X times more than we do!”), and secondly, there is no such thing as too big budget. There are always ways to make it not fulfill organizational requirements. Table 2 summarizes the results of the second phase of the study.

Table 2. Results of the second stage of research

	Ecology	Sustainable project management	Student organizations
Present or upcoming opportunities	<ol style="list-style-type: none"> 1. Promoting the university as an “ambassador of ecology” 2. Acquiring new sponsors and partner companies for Wrocław Tech based on activities contributed to protect nature 	<ol style="list-style-type: none"> 1. Increased percentage of projects completed in an expected scope and delivering the results expected by the metrics 2. Increasing the number of speeches and workshops at Wrocław Tech devoted to SPM 	<ol style="list-style-type: none"> 1. Substantive assistance for student organizations 2. The possibility of being funded as a science club without having to be a “strategic” science club 3. Organising of conferences and training by students 4. Involvement of students from various faculties on trips and events throughout the year
Perceived barriers	<ol style="list-style-type: none"> 1. It is very costly for the science clubs to implement projects with green solutions 2. Too little knowledge of how to run a project with similar effectiveness but that is more eco-friendly at Wrocław Tech 	<ol style="list-style-type: none"> 1. No direct staff specialised to train in the field of SPM 2. In order to equalise the level of knowledge in organizations, it would most likely be necessary to impose the requirement to complete the training in that field 	<ol style="list-style-type: none"> 1. Lack of specific motivation by students to lift their organizations in a difficult situation 2. The amount of subsidies is highly varied (often even within one field) 3. A large disproportion between the possibilities of starting activities outside one’s own organization for organizations from different faculties

In the third phase of the study, the main barriers to implementing the SDGs goals were those related to the lack of adequate funding on the part of student clubs to implement sustainable projects, and, as with the earlier study, the lack of information about green projects, as well as people who are specialists in the topic to support implementations.

It is worth noting that there are many “gaps” in the area of student labour. Once they are filled with principles from the area of sustainability, the quality of work can increase significantly. It seems that the problem with these gaps, due to the nature of this environment, in which people are not required to think prospectively and retrospectively, the implementation of the idea of sustainability of such ideas, can happen most quickly through interference from outside – actions or resources. Simply stimulating the environment from within may be too weak a stimulus.

4.5.3. Differences in the perceiving the issue of SD at universities by experts and students

Due to the way the research questions were constructed, students’ opinions on SD are related to their student organizations, and experts’ opinions refer to the university overall, but also to the role of students in the process of introducing SD at the university. And it is this aspect that the authors would like to compare from these two perspectives.

Experts discussed the topic of a unified strategy for implementing SD goals. If it is to be comprehensive and bring real results both in the administrative, teaching and student areas, students must also be included in this strategy. The university should then also communicate things such as strategy or requirements directly: “As a university, we operate/want to operate sustainably, so work should look in this specific way.” However, including individual students in the strategy (study programs, activities, events) may not have such a significant impact on student groups – science clubs, and cultural agendas. These are a kind of hermetic organizations focused on their members and their goals, and the best solution would be to take into account these students as groups, not individual people. Additionally, according to students and experts, there is a need to create metrics, and indicators of what needs to be done to meet sustainability requirements, as is the business case. Especially at the beginning of the process of students becoming familiar with SD, it will be important to indicate precisely what should be done. A good solution, although perhaps only in the short term, would be to provide appropriate rewards for meeting specific points of such criteria.

The experts suggested that the university needs/wants students to be involved in the process of introducing sustainable standards in various aspects of the university’s functioning. The barrier that stands in the way is resources. The organization of each new event (regardless of whether it contributes to equal opportunities, the development of science, etc.) requires invested funds and students’ man-hours. The same applies to the change of processes that take place in organizations – sustainable construction, project management, and knowledge transfer systems. Even though students are very willing to engage in volunteering for their organizations, the obligation to initially work even harder – in order to “be sustainable” – may meet with resistance due to limited financial/human resources or know-how. Therefore, if the university wants to undertake such initiatives, it must consider such conditions in the strategy of the SD implementation process. A good idea suggested by experts, for which the surveyed students reported demand, is training in this field. This may somehow compensate for students’ lack of experience in the

area of SD and motivate people who are familiar with the subject to act in these directions. An example of such activities may be the NAWA project⁶.

Because students perceive sustainable standards as something exclusive from the point of view of their organization, and from the university's perspective it can be perceived as something basic (a lot of entities have SD practices as basic activities), a good solution will be to enable cooperation between students and external companies. In some companies, operating in the SD area is already a standard. If a university can establish relationships with businesses, efforts should be made to ensure that student organizations also engage in such cooperation as often as possible. This is not only about sponsorship, as is the case so far, but also substantive cooperation and learning about specific practices. The authors see a lot of added value here, which can be created when the university focuses on enabling the closest possible cooperation between these two groups.

5. Conclusions and recommendations for further research

Based on the results obtained, conclusions and recommendations are presented in the third stage of the presented research model.

Iron triangle of management

One of the motivations for introducing SD to design work is profit in each of the areas of the “iron triangle of management”, that is costs, time and risk. One of the problems is that an investment in the activities of the organization related to SD must first be made to obtain the desired results later. In a student organizational context, it could often be impossible. The university, in most cases, cannot be an internal sponsor of such activities, and obtaining sponsors from outside the university, especially for smaller organizations, is exceedingly difficult. Therefore, the university should make every effort to ensure that such opportunities and cooperation could occur. This does not have to be only about financing. Cooperation with business can also be of a substantive nature, or in the form of exchanging other types of resources.

Promoting SD

It may be problematic to popularise the idea of SD by, for example, only promoting content to engage people in selected activities, without indicating the measurable benefits resulting from these activities. This is even more difficult with student organizations. This is because they are not public benefit organizations or a social sector, so they do not have these activities in their statutes. Each action taken generates costs, and sources of funding are difficult to find. Popularising by promoting content on social media seems like an interesting idea, but again, these organizations have to interfere with the workload to do so, and some of them receive no compensation whatsoever. For people to consciously engage in the process of introducing SD at the university, it is important that they first become familiar with the strategy being implemented by the organization, and then learn about the initiatives being undertaken in practice. It is also worthwhile for students to have a clear understanding of what area, how, and what type of activities should be undertaken so that they have the optimal, anticipated effect.

⁶<https://nawa.gov.pl/>

Sustainable goal and sustainable project management (SPM)

The introduction of the principles of SD as standards for the functioning of the entire university, including the practices of SPM, may turn out to be the area with the greatest potential in the entire university environment. In small organizations, it can be fairly easy to implement appropriate practices. The close atmosphere favors mutual isolation, but most of all joint testing of innovative solutions –those taken from SPM. In large organizations, it is not easy to mandate a specific practice because it often requires a detailed plan to be presented and approved by the board or the leader/manager. In a smaller case, however, the leader may simply order the application of a solution; of course, this may have negative consequences, but this situation may be worth considering.

Education/SD concept promotion

When considering the space of the sustainable development model in the context of the entire university, it is worth emphasising the importance of more local and smaller activities that can bring positive results throughout the organization. Support for bottom-up employee and student initiatives related to SD issues by university authorities may constitute an idea for developing and then implementing the concept of SD at the university. This approach should also be applied to student organizations. Education that includes informing students about the assumptions of SD is one of the many possibilities for promoting the idea of SD among groups of Wrocław Tech stakeholders. To be effective, the message must be simple, clear and readable by the recipients.

Model of sustainable development/leaders of change

The preliminary analysis of activities undertaken at Wrocław Tech in the field of SD does not indicate the existence of a coherent, uniform model of SD for the entire organization. The research that was conducted shows that many problems in the examined organization are caused by poor project management. Therefore, it is worth considering the creation of a special training program addressed to all stakeholders of the university. In this course, the knowledge and skills related not only to SPM but also to the development of other competencies that can be integrated will be taught. By investing a small amount of funds, the university may jointly try to pass a large part of the knowledge to the people who collect this knowledge, especially since many leaders openly admit that they have never been prepared for such a role, either from the substantive or practical side. Sharing knowledge with change leaders is just the beginning. It is also necessary to implement the next stages, that is, to prepare people for changes (this should be done by the mentioned leaders), for example, in the form of discussions within employee and student teams about the upcoming changes –gathering their opinions as well as possibly correcting plans in a predetermined scope. Moving forward would involve collecting and discussing any concerns related to planned changes, appointing change ambassadors in teams supporting the leader and implementing and monitoring short- and long-term implementation. There is a chance that with such a comprehensive approach, it will be possible to create a coherent model of sustainable development in an organization as large as Wrocław Tech.

The analyses carried out in the article have a significant contribution to the development of the science of sustainable development of universities. They are not groundbreaking, but they provide a broad look at the complex and heterogeneous organization that is a university, in this case, Wrocław Tech –

university composed of 14 faculties with different specificities. The authors, carrying out detailed document research as part of research on secondary sources, as well as among selected stakeholder groups – employees and students, indicated huge potential for further in-depth research. The collected material can be used both to supplement current knowledge on the implementation of the concept of sustainable development and social responsibility in an organization such as a university, as well as to design further research projects.

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