

# WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

## *EVALUATION REPORT*

### *EVALUATION WITH A SPECIAL FOCUS ON MANAGEMENT OF RESEARCH AND USE OF RESEARCH RESULTS*

*January 2020*

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# 1. Introduction

This report is the result of the evaluation of Wrocław University of Science and Technology (WUST), located in the city of Wrocław, Lower Silesia, Poland. The evaluation took place in 2019, following a request from the Rector of WUST, Professor Cezary Madryas, and included two visits to its campus in Wrocław, on 14-15 October and on 3-5 December 2019.

## 1.1 Institutional Evaluation Programme

The Institutional Evaluation Programme (IEP) is an independent membership service of the European University Association (EUA) that offers evaluations to support the participating institutions in the continuing development of their strategic management and internal quality culture. IEP is a full member of the European Association for Quality Assurance in Higher Education (ENQA) and is listed in the European Quality Assurance Register for Higher Education (EQAR).

The distinctive features of IEP are:

- A strong emphasis on the self-evaluation phase
- A European and international perspective
- A peer-review approach
- A support to improvement

The focus of IEP is the institution as a whole and not the individual study programmes or units. It focuses upon:

- Decision-making processes and institutional structures and effectiveness of strategic management
- Relevance of internal quality processes and the degree to which their outcomes are used in decision-making and strategic management as well as perceived gaps in these internal mechanisms.

All aspects of the evaluation are guided by four key questions, which are based on a “fitness for (and of) purpose” approach:

- What is the institution trying to do?
- How is the institution trying to do it?
- How does the institution know it works?
- How does the institution change in order to improve?

The evaluation with a special focus on management of research and use of research results uses the same IEP methodology, but within this context pays special attention to the policies, structures and processes in place for supporting research activities at the institution and how the institution manages the exploitation of the results of research in

order to convert the knowledge resulting from research activities into socio-economic benefits.

### 1.2 Wrocław University of Science and Technology's profile

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Wrocław is the capital of the Lower Silesia province (*voivodeship*), which is one of the richest and most well-developed regions of Poland, attracting domestic and foreign investors not only through its natural resources and industrial tradition, but also its well-educated and skilled population, namely young people. In fact, the city of Wrocław hosts about 120,000 students enrolled in its various higher education institutions, representing around 20% of its total population.

WUST is a public university founded in 1945. However, its roots are much older, going back to the scientific heritage of Lviv's academic circles. Teachers and scientists from Lviv's tertiary institutions, survivors of World War II, re-established technical higher education in Wrocław in 1945, adapting and rehabilitating the destroyed buildings of the former Technische Hochschule Breslau, first established in 1910.

In October 2019, the university employed about 4 000 people, of which 2 166 were academic staff, the majority of these (73%) being teaching and research staff, 20% only teaching staff and the remaining 7% researchers. Around 31% of the academic staff were female.

Approximately 26,500 students are enrolled at WUST in Bachelor's, Master's and doctoral study programmes, in fields primarily associated with engineering and technology. Study programmes are taught at its 13 faculties located in the city, and at the three branches located in Jelenia Góra, Wałbrzych and Legnica. The 13 faculties in Wrocław conduct teaching and research activities, while the three branches outside the city only perform teaching. In addition, and in compliance with the new national regulations, the university recently established a Doctoral School.

The 13 faculties located in the city are: Architecture; Civil Engineering; Chemistry; Electronics; Electrical Engineering; Geoengineering, Mining and Geology; Environmental Engineering; Computer Science and Management; Mechanical and Power Engineering; Fundamental Problems of Technology; Microsystem Electronics and Photonics; and Pure and Applied Mathematics. The three branches outside the city are: Faculty of Technology and Computer Science in Jelenia Góra; Faculty of Technology and Engineering in Wałbrzych; and Faculty of Technology and Natural Sciences in Legnica.

The majority of the WUST facilities are quite new and appear up to date. Most are concentrated on the main campus situated on both sides of the Odra River, but some buildings and other infrastructures are scattered throughout the city. It is worth noting that, in line with its scientific and technological vocation, the university has 230 laboratories for research and teaching, of which 14 are accredited for conducting tests and specific experimental work.

One of the initiatives launched by the Polish Ministry of Science and Higher Education as part of the 2018 reform of the higher education and science system, was the "Excellence Initiative - Research University" programme, the first edition of which was launched in 2019. The main objective of this programme was to identify a group of 10 leading Polish higher education institutions that have the highest potential to become research-intensive universities, performing world-class research and top-level research-based education. In addition to strengthening their prestige, the selected institutions will receive state funding increased by 10% annually for a 7-year period (from 2020 to 2026).

Having a strong aspiration to become one of the selected universities, in June 2019 WUST submitted the application documents for the competition. Although the application to the programme has not been totally successful, WUST was included in the group of the 20 best universities in Poland, and for that it will receive an increase in the annual state funding for the period 2020-2025 equal to 2% of the subsidy received in 2019.

It is clear that, together with the changes resulting from the new legislation, there is a strong motivation in the management of the university to stimulate its units and academic staff to develop and upgrade their research level. The aim is to increase the number and relevance of scientific projects, as well as the quantity and quality of publications. This is a major goal that WUST is currently pursuing.

### *1.3 The evaluation process*

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This IEP evaluation process started with WUST's registration to the IEP programme in July 2018. However, the significant changes introduced by the new Law on Higher Education and Science – in force since 1 October 2018 – as well as the corresponding adaptations in the university's statute, organisational structure and principles of operation, delayed the self-assessment process, which started in December 2018. A self-evaluation group was appointed by the rector, and consisted of academic staff of different positions and responsibilities, together with a representative of the administrative staff and a student representative.

The Self Evaluation Report (SER) was provided to the team in mid-September 2019. The SER includes sufficient information to enable the IEP evaluation team to acquire a comprehensive understanding of the current situation and aspirations of the university. However, the it is more descriptive than analytical, reflecting critically, but not at length, on the problems and insufficiencies that WUST faces now and the challenges that expects to face in the near future. The SER reports several goals to be pursued in the general scope of the university's strategy, but it is not specific about the actions to be taken to achieve those goals.

Given the climate of considerable uncertainty in which the self-evaluation exercise took place, the IEP evaluation team (henceforth the team) recognises that the self-evaluation group may have had great difficulty in producing a more analytical report. For example, the new statute of WUST that defines the structure and governing bodies of the university,

although in preparation, was not fully disclosed during the period of self-evaluation, having entered into force only at the end of 2019.

Despite this, according to the SER (p. 2), “the self-evaluation process was an occasion for taking an objective look at the University and for reflection about its future, which was especially useful in the period when many changes in the Polish higher education area were taking place”. In order to assist in the preparation of the SWOT analysis opinions were collected from employees and students (including PhD students) about the self-assessment, the current situation of the university, and its prospects for future development.

The team observed that despite the fact that the self-evaluation process and the corresponding report were well communicated, both the process and its results were not widely known across the institution. The changing situation that the university experienced at multiple levels during the period of the self-evaluation and preparation of the report explains this, at least partially.

The first visit of the team to WUST took place on 14-15 October 2019 and the second visit took place on 3-5 December 2019. During both visits, the team took advantage of a very favourable atmosphere to openly discuss the situation of the university with many actors and stakeholders.

Additional documents were provided to the team in between the two visits, notably the application for the “Excellence Initiative - Research University”, the rector’s speech on University Day (15 November 2019), and the new statute of WUST.

The evaluation team consisted of:

- Sokratis Katsikas, Rector, Open University of Cyprus, Cyprus, Team Chair.
- Mar Campins Eritja, Vice-Dean for Research and International Relations, Faculty of Law, and former Vice-Rector for International Policy, University of Barcelona, Spain.
- Peter Wieringa, Dean of the Graduate School, and Pro-Vice Rector and Vice Chairman of the Board for Doctorates, Delft University of Technology, the Netherlands.
- Arus Harutyunyan, Master’s student, Armenian State University of Economics, Yerevan, Armenia.
- José Sarsfield Cabral, member of the Board of the Agency for Assessment and Accreditation of Higher Education - A3ES, former Pro-Rector, University of Porto, Portugal, Team Coordinator.

The team would like to express its thanks to the Rector of the University, Professor Cezary Madryas, for the warm welcome, support, and generous hospitality provided during the visits, as well as for the useful and open discussions. Our special thanks go to the university’s liaison person, Dr Andrzej Moczko, who prepared and organised the two visits and all meetings perfectly, and promptly assisted the team in every matter that was requested.

## 2. Governance and institutional decision-making

### *2.1 Mission, vision and strategy*

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The mission of WUST is defined thus: “We are creating a competitive future” (SER, p. 6, and Annex 1, p. 18), and is linked to the university’s vision, which states that its fields of action are engineering and technological development, and that the university aims to convey key competencies to its graduates, such as creativity and pragmatism anchored in an experimental culture, so that they become successful professionals. Additionally, WUST seeks to be an accountable institution, contributing to the development of knowledge and public utility.

The strategic plan for the 2016-2020 period established four main pillars for development: teaching competence, research potential, business efficiency, and regional base (SER, Annex 1, p. 14). The strategic document describes and contextualises the meaning of the headings assigned to each of these pillars. For example, “research potential” means that: “The University takes part in the world’s research effort and engages in solving specific local problems. It is creating its brand image both in advancing new theories and in applied sciences”. In fact, WUST’s research strategy is strongly anchored in the applied nature of its research activity, and its very close connection with the economic environment of the city and the region in which it is located.

Regarding the “business efficiency” pillar, the strategic plan for 2016-2020 states that: “The University differentiates the financial sources for its didactic, research and development activities. In particular, it gains financial resources from commercialised research and from the provision of expertise” (SER, Annex 1, p. 17).

In short, WUST sees itself as an institution with a strong research orientation, having close links with industry and other external stakeholders. This strategic orientation pre-dates the new direction for higher education in Poland, as can be seen in WUST’s current strategic plan (2016-2020). However, in the speech delivered on University Day, the rector emphasised the need to develop a new strategy capable of further strengthening the scientific level of the institution, and defined a set of action lines for this purpose. Accordingly, the team learned that a process for strategic planning is now in place. It is worth noting WUST has a department dedicated to the university’s strategy.

### *2.2 Governance and decision making*

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In addition to the pre-existing Rectorate and Senate, under the provisions of the new legislation a new governing body – the University Council – has been in operation since February 2019 (its mandate expires on 31 December 2020). The council consists of seven members, including three representatives of the university community, three members from outside WUST (all six elected by the Senate), and the president of the Students’ Union. It should be noted that the Head of the Council is one of the external members. Along with

appointing the candidates for the post of rector (following a recommendation issued by the Senate), the tasks of the University Council include issuing opinions on WUST's strategy (and the rector's report on its implementation), issuing opinions on the draft statute, and supervising the management and finances of WUST.

Currently, the Senate is composed of 60 members, including the Rector, five Vice-Rectors (for General Affairs, Research, Educational Affairs, Cooperation with Industry, and Student Affairs), 13 Deans (of the 12 faculties plus the doctoral school), 15 representatives of teaching staff with the title of professor or position of university professor, 10 representatives of teaching staff employed in other positions, four representatives of non-teaching staff, and 12 student representatives (including a PhD student). The distribution of seats for each constituent group in the Senate (each group elects its members) follows the proportions established by law.

The rector's responsibilities include, amongst others, representing the university; managing the university; drafting the strategy of the university (and reporting on its implementation); appointing and dismissing managerial personnel; creating studies at a specific field, level and profile; creating doctoral schools; and managing the finances of the university (SER, p. 10). In line with the new legislation, some powers were taken away from former collegiate bodies (for example, Faculty Councils no longer exist), and the rector's powers and competences to direct the university have been reinforced. Nevertheless, the team observed that the decision-making processes in WUST have remained transparent and democratic.

The most significant and thorough change resulting from the new legislation is the focus on scientific disciplines rather than on research units, as has been the case at WUST until recently. In fact, according to the law, in the new organisational structure currently being established in accordance with the law, research activities are the responsibility of the scientific discipline councils (which can encompass more than one department, even across faculties), while the faculties are responsible only for education. According to the SER (p. 11), "... the academic policy of the University is shaped by councils of the scientific disciplines. The presidents of the scientific councils form the Board, which is chaired by the Rector or Vice-Rector appointed by the Rector."

More specifically, and according to the SER (p. 8), "The Faculties are going to be the units, whose task is going to be teaching and creation of conditions to teach, among other through cooperation with departments in this respect." The SER (p. 21) also explains that until 30 September 2019 it was the Faculty Councils that established the study programmes and syllabuses, but after 1 October 2019 each faculty has a "... consultative council, which includes [...] the head of the programme committees of the fields offered by the given faculty." The SER (p. 8) also states that: "Departments are going to be the units in the University's structure, which are going to lead research and development works, as well as to cooperate in the area of teaching within the given faculty".

The new structure is still under construction, and there is not yet experience about its advantages and disadvantages, but some potentially problematic areas can be already



identified. For instance, exactly how the heads of programme committees will cooperate (in relation to education activities) with the presidents of scientific discipline councils is unclear, as are the specific powers each will have, for example in the selection and appointment of teachers and in the definition of syllabuses. It is also unclear how interdisciplinarity will be promoted and operationalised. It is worth mentioning that the SER refers to the need for cooperation between teaching and research, and also recognises the threat posed by the lack of support for interdisciplinarity.

Although the governance structure is appropriate for the current transitional period, **the team recommends that WUST should closely monitor the efficiency and effectiveness of governance-related functions under the new structure and be prepared to make adjustments as appropriate.**

Through the meetings at the university the team learned that, primarily due to the ongoing changes resulting from the implementation of the new higher education framework, there is still a climate of uncertainty about how, in practice, WUST will adjust its governance and decision-making processes to meet the intended objectives. In spite of being defined in the new statute, the competences of some organisational units and those that lead them, such as those of the Deans of Faculties, Heads of Departments, and especially of the Presidents of the Scientific Discipline Councils and the Board, were not yet well perceived or understood. Accordingly, **the team recommends that WUST should clearly define and explain the responsibilities and the powers of decision-making bodies and those that lead them.**

The central managerial functions are carried out by Vice-Rectors, Deans and Vice-Deans, and the Dean and Vice-Deans of the doctoral school. In addition to these, there are the Presidents of the Scientific Disciplines Councils (and their deputies), the Heads of Departments, the Directors of Branches and the Directors of university-wide units (SER, p. 11). Although there are several positions in the governance structure, the team noted that only a relatively small number of staff contribute to the management, and that some functions are even concentrated on the same person. All these bodies will soon have to be managed by staff whose current experience and main activities are focused on teaching and research rather than academic management. Therefore, **the team recommends that WUST should prepare the next generation of managers for the University from among its teaching staff.**

### 3. Quality culture

According to the SER (Annex 9), the WUST quality policy is derived from the university's mission, vision and development strategy, and aims to meet (and strives to exceed) the expectations of its stakeholders. In short, the policy is based on "the concept of integral management through quality". More specifically, the SER, p. 16, states that: "the University applies a pro-quality approach in each and every aspect of scientific research, education and in the area of organisation and infrastructure."

From the perspective of the team, the quality policy, although comprehensive and covering the main areas of activity of the university – scientific research, education, organisation and infrastructure – consists mostly of declarations of intent and is not as detailed as necessary (at least in the English version). It can be deepened and complemented, for example by including quality objectives, and details of the roles and responsibilities within WUST's overall quality assurance system.

The team also notes that there is no formal body of the university's management structure with responsibility for monitoring and managing quality, here defined in a broad sense, simultaneously covering education, research and outreach (or service to society). **The team recommends that the university establish an organisational unit for quality assurance in teaching, research, and outreach, reporting to the top management.** It should be stressed that, according to the new statute, the rector has to submit to the Senate an annual report of the execution of the university's strategy, which includes quality assurance in all areas of activity.

The overall objective of WUST's quality policy in the scientific and research domain is to improve the quality of those activities. This objective is deployed in a range of different aspects, such as: ensuring high standards of scientific research; intensifying cooperation with national and international research centres; increasing the transfer and commercialisation of research results; developing research laboratories and improving their research equipment; and expanding scientific production (including the number of articles in prestigious specialised journals, presentations at scientific conferences and patents). Annex 9 of the SER summarises by saying that "The objectives of the Quality Policy in the area of scientific research are therefore aimed at raising the prestige and improving the image of Wrocław University of Science and Technology in the worlds of science and practice not only in the country, but also around the world."

In the past, the university's research activity was evaluated every four years by an external committee (the last evaluation took place in 2017). In general, the results of these evaluations were positive. Only one of the 13 faculties engaged in research was classified in the "acceptable level", 11 were classified in the "very good level", and one in the "excellent level". Following the new legislation, the overall evaluation of WUST's research activities will be based on the outcome of the individual assessments of each of the 12 scientific disciplines undertaken at the university (and not of faculties). This evaluation will be carried out by the national Science Evaluation Commission and will start in 2020. The

management of the university is making significant efforts so that the WUST adapts to the new requirements. There is a simultaneous feeling of uncertainty and hope for future results as, for the first time, there will be a comparison at the national level for each scientific discipline.

The university currently monitors its scientific performance internally through a set of indicators: “number of publications, financing obtained for research, national and international research projects run, assignments for the environment in the region, the number of patents and implementations, students engaged in R&D activity, as well as national and international conferences organised and awards received” (SER, p. 30). Scientific results produced by WUST staff are gathered in the Academic Achievement Information System database. Moreover, scientific publications, citations, scientific dissertations, and other documents resulting from scientific experiments and research and development work are archived in a Knowledge Repository. In addition to being an archive, this repository also serves to disclose the scientific research carried out at WUST to the business world, and to foster knowledge transfer to the economy.

Regarding education, the quality policy of the WUST is also quite comprehensive: to increase “the quality of the education process in line with the best academic practices, including undertaking and promoting initiatives to improve this process and achieving the assumed learning outcomes [...] as well as responding to the needs and expectations of the University's stakeholders” (SER, p. 16). Still concerning the topic of education, the 2016-2020 strategic plan (SER Annex 1, p. 44), defines the three principal quality targets as follows: (1) “Updating and improvement of curricula with regard to the needs and expectations of students”; (2) “Development of education process management in compliance with best academic practice”; and (3) “Development of good practices and solutions in the education process within the framework of the European Higher Education Area.”

WUST has in operation a System for the Provision of Quality Education. At the university level, this system is governed by the Council for the Provision of Quality Education, which is chaired by the Vice-Rector for Educational Affairs and includes representatives of students. The corresponding body at the faculty level is the Education Quality Assurance Faculty Committee. These committees also include student representatives. This structure is expected to be maintained even after the new statute becomes fully operational.

The main central instrument to monitor and improve the education process is the University Education Quality Assurance System (USZJK). The Faculty Quality Assurance System (WSZJK) corresponds to the implementation of the central system (USZJK) in each faculty. The most commonly used tool for student feedback is the electronic survey. The team learned that the response rate to surveys is relatively low, and that informal feedback mechanisms play an important and complementary role, as many students choose alternative ways for giving their opinions, suggestions and recommendations. **The team recommends that WUST should promote awareness of quality assurance mechanisms through student representatives, namely through student unions.**

The information produced is collected in the quality system's databases and is processed to evaluate teaching and teaching staff periodically. In the view of the team, the quality assurance system does not provide all the information needed for effective quality assurance in education. For example, the information gathered through the current questionnaires for course evaluation is not as useful as it could be, since the vast majority of questions only allow for yes or no answers. Furthermore, the university does not have directly available data on relevant issues such as dropout rates or average completion time of study programmes. **Hence, the team recommends that WUST should review its internal information/data system on educational issues to collect additional relevant information.**

Survey outcomes are used to support the improvement of study programmes, along with other practical aspects of the classes. Questionnaires and other informal information-gathering mechanisms are also aimed at teaching staff (concerning teaching and learning conditions), alumni, and employers (about the skills and competences of graduates). In addition, WUST conducts studies on the careers of graduates to assess the adequacy of study programmes and teaching methodologies for the needs of the labour market.

The team was informed that a periodic audit of one class of each member of teaching staff is carried out at least once every four years. The team believes that this should be more regular and systematic, so **the team recommends that WUST should collect student feedback and assess teaching performance more frequently, including by exploring alternative mechanisms (e.g. reference groups).** In this regard, the team welcomes the fact that the university is planning to hold student meetings at the end of each semester to collect feedback on their learning experience.

Throughout above mentioned elements of the quality assurance system for teaching and learning at WUST, the team notes that none of the documents provided to them (SER and its annexes) makes reference to the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). In addition, during the interviews, the team observed that these standards were not known to teaching staff and quality managers.

It should be mentioned that in both the research and education domains WUST is used to external assessment. The fields of study offered at WUST are mandatorily assessed every six years by the Polish Accreditation Committee (PKA), with five study fields being recently rated as "excellent". Three study fields received the EUR-ACE label (an international, voluntary accreditation scheme for engineering programmes), and three more study fields have submitted applications. Additionally, the study field Chemical Technology and Chemistry has applied for accreditation by the European Chemistry Thematic Network Association (ECTN). In the view of the team, all these evaluations (mandatory and voluntary) promote and stimulate quality culture.

The team observed that awareness of quality assurance and accountability permeates the leadership and staff and that decision-making appears to be informed by the outcomes of quality assurance mechanisms. Through questionnaires and committees, students and staff

can express their opinions, appeals and complaints. Formal quality assurance mechanisms are complemented by informal ones that involve all the stakeholders.

In summary, the quality assurance system appears to be prepared to meet the requirements of external evaluations. However, internally, the reporting burden, together with internal communication difficulties (all referred to in the SER, p. 33, as weaknesses), appear to be harming the system. In addition, full alignment with European standards is missing. Therefore, the team believes that there is room for improvement of the university's internal framework for quality assurance. **Accordingly, the team recommends that WUST reconsider its overall quality assurance system with an eye towards:**

- **aligning with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), part 1;**
- **optimising the relevance of information obtained from the process and reducing the reporting burden for teaching staff.**

## 4. Management of research and use of research results

In recent years, research at WUST has made considerable progress. For instance, the SER (p. 7) states that: “When it comes to the number of patents and protective rights granted, (WUST) is one of the best universities in Poland”, and also: “The activities undertaken so far by the University resulted in ... steady increase in the number of international publications” (p. 34). The SWOT analysis conducted by the university considers as one of the strengths of the university the “high level of research activity in terms of parametric assessment”. During the visits, the team observed ongoing quality research activity, a high-quality research infrastructure and a supporting culture.

WUST has a long tradition of proximity to and collaboration with the business world, with which it develops and promotes close links, stimulating joint or collaborative research projects. In 1995 WUST established the Wrocław Centre for Technology Transfer aiming at cooperating with industry and at commercialising scientific research results. This centre has in place mechanisms to monitor and exploit research results, to identify projects and partners in the industry and to connect them with the appropriate teaching staff, as well as to protect intellectual property. In addition, WUST leads, or is a partner of, various external research centres and infrastructures, as well as a considerable number of research laboratories.

The WUST's leadership is strongly committed to making the institution a “research university”, which means increasing the quantity and, above all, the quality of its scientific activities, particularly as regards publications, research projects, competitive funding, and international cooperation. This effort is being made within a framework of major changes in the governance and decision-making structure, namely the implementation of Scientific Discipline Councils that will shape the forthcoming research policy of the university.

In the application document for the “Excellence Initiative – Research University” competition, WUST identified seven “Priority Research Areas” and justified in detail the reasons for that choice. The team was informed that these priority areas intersect across the scientific disciplines of WUST. However, institution-wide research priorities have not yet been established. Additionally, a clear definition of the role of the Science Discipline Councils (and of the Board) in institutional strategic planning and decision-making, and the respective allocation of resources (namely budget) are still missing, or are perceived as missing. **The team recommends that WUST should clearly define the mandate of the Science Discipline Councils and the Board, and provide the means and the instruments to implement it. The team also recommends that the university should articulate a clear research strategy that will define institution-wide research priorities and assign resources accordingly.**

The leadership of WUST is seeking to stimulate and adapt the institution as a whole to respond positively to the new research evaluation scheme of the scientific activity of Polish universities, which will be conducted in 2020 by the Commission for Science Evaluation. This evaluation will focus on scientific disciplines, and the criteria will include, among others:

publications; grants; research and development projects; patents; commercialisation of scientific results; and social impact. The number of papers in leading international journals being one of the most valued parameters.

As previously mentioned, the university monitors its scientific production not only in terms of the number of publications and citations, but also the revenues obtained from research activity. The university is striving to attract additional revenue, in particular by increasing competitive grants and commercialisation of research results. Although research revenues are growing (and accounted for around 24% of total revenue in 2018), they have not yet reached the level desired by the leadership of the WUST.

Despite the good results already achieved, the current volume of publication in channels (e.g. journals, conferences) of high standing does not accurately reflect the level of research activity at WUST. In order to significantly improve its scientific performance particularly with regard to publications, the university has to overcome some constraints. The SER (p. 33) identified a “lack of [an] evaluation system that motivates employees financially” as one of its weaknesses, and notes as a threat that “a rigid system of employment and remuneration in higher education hinders motivating employees” (SER, p. 32).

The team identified that one of the difficulties that WUST is facing in stimulating its teaching/research staff to be more productive in research is that the teaching load is perceived as competing with research activity, particularly for those who are able to publish articles in good quality journals and to attract funds for research. The university already has in place a policy to reward the scientific activities of teaching staff based on incentives, namely through reduction of the teaching load. However, the team found that not all teaching staff with whom it met were sufficiently familiar with that scheme. Accordingly, **the team recommends that WUST should take measures to improve the awareness of staff on rules regarding the reduction of the teaching load for staff active in high-quality research, and to ensure consistency of the use of these rules across faculties.**

The team noticed that the age distribution and the gender balance of the staff show potential for sustainable research activity (47% of all teaching and research staff are aged 40 or younger, of which 39% are women). Despite this, the limited attractiveness of the academic career is a current problem. Although there is the “perception of Wrocław University of Science and Technology as an attractive and reliable employer” (SER, p. 33), the team was informed during meetings that, at least in some specialties, the wages paid by the university are not competitive enough given the growing demand for highly qualified people in the region. It is difficult to attract scientific talent capable of engaging with high quality research to academic careers. Despite the barriers posed by relevant legislation, the team believes there appears to be scope for improving the situation. Thus, **the team recommends that WUST should explore innovative ways to improve the attractiveness of the university for young talent.** To the same end, the establishment of the doctoral school is a step forward in ensuring high-quality doctoral education and research. **The team**

**recommends that WUST should improve the integration of the doctoral school in the research process.**

Another challenge for WUST is to determine the right balance between collaborative research with industry and research for academic purposes (although applied). The former has the advantage of generating revenues, but in turn usually produces fewer publishable results (often due to confidentiality or protection of the contractor's rights). Over time, such research risks becoming mainly advanced technical consultancy. In the latter case, funding is usually provided by funds or grants, and is more likely to lead to quality publications.

There is no doubt that partnerships and research projects with industry have very interesting potential, not only for the identification of relevant research topics and to promote the scientific empowerment of teaching staff (and students), but also for the contribution to regional and national economic development. The risk is that the focus on collaborative research with industry can make it difficult for the university to raise its scientific output (and peer recognition) to the level required for the designated "research universities. That risk does not apply to the industrial doctorates, which WUST is successfully developing with significant business partners in the region, and which is undoubtedly a promising initiative.

**Taking all this into consideration, the team recommends that WUST should establish policies and measures to mitigate the risk of imbalance between industry-oriented research and research required to retain research-oriented university status.**



## 5. Teaching and learning

The leading managerial bodies for educational matters are the Rector, assisted by the Vice-Rector of Educational Affairs, and the Senate. The latter is responsible for establishing guidelines for “determining syllabuses, study programmes and plans taking into account the learning outcomes in accordance with the National Qualifications Framework for higher education” (SER, p. 21). The Senate is also responsible for “determining how to confirm learning outcomes”. In addition to the Senate, the Council for the Provision of Quality Education also deals with the education process, in particular with regards to its monitoring and control.

The university offers a wide variety of full-time and part-time Bachelor's (around 50) and Master's (about 40) study programmes covering a broad spectrum of topics ranging from architecture to technology, and including a large number of specialties linked to engineering and sciences (mathematics, chemistry, and physics), without neglecting the social sciences and humanities. In addition to this, the doctoral school provides PhD programme in 13 specialties.

WUST students receive financial support through a comprehensive scholarship scheme. In addition, the team observed that the university offers excellent learning facilities, and excellent student support services. These include departments of Sports and Physical Education, E-learning, Foreign Languages, Humanistic and Social Sciences, and a Student Culture Zone. The Student Culture Zone houses a canteen, a café, a student club, small rooms and a relaxation area, and is equipped with a stage and multimedia material for artistic and cultural events. Another important element for student support is the Career Office together with the Academic Entrepreneurship Incubator. The Career Office plays an important role in supporting students, in career counselling, labour market information, promoting the hiring of graduates by employers, and managing the Mentoring Programme (which uses experienced WUST graduates as mentors). It should be emphasised that the team found a stimulating learning environment, and that the students and former students with whom the team met were happy with their experience at WUST.

The library, the largest in technical resources in Lower Silesia, is installed in a new modern building. It is equipped with advanced tools to optimise electronic search of resources, and organises training sessions, workshops and seminars on the use of information resources and services for staff and students (including PhD students). Moreover, the library has an extensive educational offering including training sessions to help students in writing their theses.

WUST shows a great concern that stakeholders voice opinions on the teaching and learning process and its content, so that the educational offer matches the needs and requirements of the labour market, increasing the employability of graduates. To this end, the Career Office conducts the “Graduates Survey”, the “Employer Survey”, and “My Ideal Employer” (a student opinion survey) (SER, p. 27). In addition to technical skills, WUST seeks to foster

"soft skills" in its students, including the ability to engage in teamwork, leadership, and problem-solving.

During their education, students perform teamwork, and are encouraged to be involved in research and development project teams and thematic scientific circles. It should be noted that WUST has established good relations with the job market, making mandatory internships in study programmes possible. In addition, there is a focus on student-led teamwork. The university promotes and subsidises a vast number of scientific clubs (according to the SER, p. 21, more than 100) run by students who carry out exciting projects.

Faculties are in charge of teaching (in cooperation with departments). Until October 2019 teaching issues were overseen by Faculty Councils, which supervised study programmes, including checking learning outcomes and recommending improvements to curricula. As previously mentioned, Faculty Councils no longer exist, and each faculty now has an Advisory and Consultative Council. These councils consist of the "head of the programme committees of the fields offered by the given faculty" (SER, p. 21). There is not yet any experience of how the current structure will impact the planning, monitoring and control of each study programme (tasks that were previously assigned to the Faculty Councils).

The SER is very reticent about student-centred learning (SCL) methodologies and practices. Such methodologies imply not only involving students in the learning process, but also ensuring that teaching staff really adopt student-centred teaching techniques, and the procedures and methods for assessing learning outcomes and student performance. The team observed that there is limited awareness of both the concept and practice of SCL throughout the university. Accordingly, **the team recommends that WUST should formulate and implement a policy and measures for improving staff knowledge of teaching and learning methods that promote SCL.** Despite this, it is clear that the university is committed to engaging students in experimental methodologies and practices, as well as in applied research activities. WUST has 230 laboratories (research and teaching), and encourages the development of publications resulting from students' scientific activities.

Furthermore, the Department of Humanistic and Social Sciences offers a course in pedagogy for students who wish to "acquire the necessary pedagogical skills to work in educational institutions" (SER, p. 22). Pedagogical training is also mandatory in all PhD programmes. As already mentioned in chapter 4, the transition to a research-oriented university presents the risk that teaching and related pedagogical issues may be devalued. Under these conditions, the pedagogical training and updating of skills of all teaching staff (young and senior) should not only be accessible but also proactively planned. Accordingly, **the team recommends that WUST should consider the establishment of more systematic pedagogical support for teaching staff.** Additionally, although the university already appreciates and appraises quality teaching, **the team recommends that WUST should formulate a strategy for mitigating the risk of decreased importance of teaching and learning.**

The e-learning department manages the WUST e-portal, supplying students and teachers with Moodle software. This e-learning platform helps the teaching and learning process of regular courses, providing materials and assigning activities to students. In addition, the e-learning department provides video classes and e-learning courses (e.g., cloud computing, mathematical analysis, physics, occupational health and safety education). However, through the meetings, the team realised that the use of e-learning platforms and methodologies (namely Moodle) was not generalised or explored to its full potential. **The team therefore recommends that WUST should expand the use of the e-learning platform.**

## 6. Service to society

Service to society and social responsibility are clearly embedded in the university's strategy and policies, particularly in its contribution to the national and regional economic development. According to the SER (p. 25), “the [strategy] of Wrocław University of Science and Technology fit in with the Strategy of the Lower Silesia Region”, and in the, “Development Strategy of WUST 2016-2020” (SER, Annex 1, p. 41) it is stated that WUST “intensely participates in overriding processes, [and] is an important player at a regional, national and international level”. Moreover, the university identifies as one of its current strengths “to be ... a known and recognisable brand”, and as one of its opportunities “the strong position of the University in the region” (SER, pp. 32-33).

The meeting with external stakeholders allowed the team to confirm WUST's commitment to the business community and the region. The municipal authorities and business managers with whom the team met were very enthusiastic about the university's contribution to their activities, particularly in the field of scientific cooperation. On the other hand, good relations with the business community and local authorities, and the willingness of these stakeholders to cooperate with the university, are seen by the leadership of the university as a way to assist the institution in strategic matters.

It should be emphasised that the management of “third pillar” activities is a responsibility assigned to the highest level of the organisational structure of the university (the Vice-Rector for Cooperation with Industry), and that WUST includes several units and facilities dedicated to functions associated with service to society.

WUST makes a significant effort to promote the use of its research output by industry (especially by industry located in the region). In 2014, WUST created the Centre for Scientific and Technical Information (CWINT) to connect the institution's scientific research structures with the business world by actively promoting the scientific potential and achievements of WUST. This centre also plays an important role in managing intellectual property issues, particularly in assisting patent registration and commercialisation. It should be noted that in this domain WUST is considered one of the most productive universities in Poland (SER, p.7). The university also manages the Academic Entrepreneurship Incubator, which provides support for the pre-incubation and incubation of companies (about 50 per year for the past three years) founded by its academic community.

As far as scientific information is concerned, the modern library of WUST provides many relevant services outside the university community, namely through its electronic library department. The users have access to a wide range of electronic resources, including e-books, e-journals, databases and a complete set of Polish Standards online. It should be noted that the WUST library is one of the leading members of the Lower Silesian Digital Library (a consortium of 22 institutions), providing online electronic search and download of books, papers and other documents stored in the libraries of the consortium members. The WUST library also coordinates the establishment of an information platform – the Atlas of Open Science Resources (AZON) – a project that is being carried out jointly with other

institutions. This platform collects, processes and provides access to scientific resources in an open digital format to all interested parties. Uniquely, people with visual impairment have access to this infrastructure, thanks to the support of WUST's Laboratory of Information Technology for the Blind and Visually Impaired.

The Centre for Scientific and Economic Cooperation, which promotes the commercial use of research results achieved at WUST and aims to bridge the university and the business world, operates within the CWINT. This centre receives requests from companies on technological problems or challenges, and seeks to find the right people within the university who can address them. The centre supports projects that are developed in this way until the respective contract is negotiated and signed. The team was informed that the number of contracts completed during the last years has grown spectacularly.

The team observed that the university actively collaborates in many other ways with the business and industrial world, as well as with non-profit entities and local, regional and national public institutions. In particular, the university is active in continuing education through the Centre for Continuous Learning. About 80% of the trainees are external to the university, the vast majority coming from companies in the region.

Aside from adult education, WUST's activity in the area of pre-secondary and secondary education deserves to be highlighted. Its Academic Secondary General Education School was rated among the top three best secondary schools in the Ranking of Lower Silesian Secondary Schools. WUST also organises the Academy of Young Discoverers for promoting exact sciences among children aged 7 to 14 years. In addition to this, the SER reports a series of initiatives involving secondary schools, other universities of the region, leading technological companies, national thematic clusters, the City Hall, regional authorities and others (SER, pp. 25-26).

The team welcomes the fact that the new statute provides for the "Social Council" (p. 60), which will include representatives of regional government bodies, representatives of scientific, professional, and artistic institutions and associations, representatives of entrepreneurs and economic organisations, and representatives of other institutions cooperating with the university (in total no more than 13 persons). The objective of this council is to assist the rector and his team in various aspects of service to society, namely "to express opinions on issues concerning the cooperation of the University with business entities" and "to promote the activities of the University in Poland and abroad." Given its importance and potential **the team recommends that the university should activate this council soon.**

From the point of view of the team, there is a real willingness of the leadership and staff of WUST in connecting university activity to its socio-economic context, namely through the provision of services of considerable value. ***The team recommends that WUST should continue to engage with local and regional society.***

## 7. Internationalisation

The team has no doubts that WUST appreciates the need for internationalisation in both education and research. The strategic plan 2016-2020 identifies the intensification of internationalisation as one of its strategic objectives, and defines the indicators for the assessment of its achievement (SER, Annex 1, p. 38). Primarily, these indicators refer to activities or outcomes that are closely associated with educational processes (the number of international teaching staff and students, the number of course and programmes taught in foreign languages, the number of students participating in international exchange programmes, etc.), but, as the team observed, research is another target area of WUST's internationalisation policy.

The Vice-Rector for Research manages the internationalisation activities, and is supported by the Office of International Affairs. Among other services, this office provides several forms of assistance to incoming and outgoing students (including mentoring, scholarship management, scholarships and funding to go abroad). It also helps teachers and researchers to organise their visits abroad and assists foreign visitors. This office is responsible for conducting the process of signing bilateral agreements between institutions and for representing the university at international fairs, exhibitions, conferences, cooperation and exchange schemes.

WUST conducts several activities to foster internationalisation. A substantial part of those activities is aimed at recruiting foreign applicants to study at the university (at all three levels of education). Also, English language courses are offered both for students and staff (although there is no formal English training plan, particularly for administrative staff). A reference should be made to the excellent quality of the International Student Guide, edited by the Office of International Affairs and directed to prospective international students, which includes relevant and useful information about life in Poland, the city of Wrocław, and the university's educational offers, services, activities and facilities.

As far as education is concerned, WUST's internationalisation policies have been successful, at least partially. Indeed, although the level of internationalisation is still relatively low (though it varies across different faculties), the number of students and staff benefiting from mobility agreements has increased considerably (although the results of outgoing mobility are more modest than those of incoming mobility). There are also several double degree agreements (12 partners from seven countries in 2018) and faculties' efforts to increase the number of degree and Master's programmes taught in English is noticeable, resulting in an impressive growth in recent years. The same can be said about other internationalisation indicators.

Concerning research, the team learned that the WUST leadership attributes great importance to research cooperation with prestigious foreign universities and international research and development institutions as measures of internationalisation. In general, the university's managers are committed to intensifying cooperation with international research groups, increasing the number of papers published in renowned international journals, and

encouraging the teaching staff to apply for research grants funded by international organisations (e.g., EU scientific grants).

Doctoral education is also a promising way to stimulate and improve the university's level of internationalisation. All doctoral programmes are open to English-speaking candidates, although most of the students are Polish and many from the Wrocław area. The leadership of the new doctoral school seems to be aware of its role in internationalisation, and of the potential to bring more international students into doctoral programmes in scientific areas where the university has already achieved an international reputation. In this sense, the leadership is seeking to make doctoral programmes more visible and attractive to foreign applicants.

Outside the scope of degree-oriented education, an important initiative that deserves to be highlighted is the annual organisation of summer schools, which has been engaging an increasing number of foreign participants. The university also has other internationalisation initiatives in place, for instance the Visiting Professors programme (in cooperation with the local government) designed to bring to WUST outstanding foreign scientists and artists.

The Team also learned that a new international centre is being created. It is an impressive and significant project that will bring together all the services related to WUST's international activities in a new building to be constructed on campus, on the banks of the Odra River.

Despite all the positive aspects observed, the team considers that there is room for improvement, namely through the development of a clearly articulated internationalisation strategy, which should include a policy for developing international partnerships and priority scientific areas. Also, it is necessary to identify priority countries towards which the educational and research offers, as well as the collaboration agreements, should be targeted. Accordingly, **the team recommends that WUST should introduce a more strategic approach to the development of international activities and partnerships with respect to:**

- education, research and administration;
- selection of research areas and study programmes that have the greatest potential;
- targeting of priority countries and international partners.

## 8. Conclusion

Higher education in Poland is going through a period of rapid and profound transition, inevitably causing a climate of expectations and uncertainty in the institutions. It was in this context that WUST carried out its self-assessment exercise, which to some extent constrained this process. In fact, during that period the challenges raised by the new legal framework were the primary concern of the leadership and management of the University, strongly motivating them to overcome the difficulties and push the university to a new level of performance. During the last few months, much of the university's energy has been spent on adapting its organisational structure to the requirements of the new law. On top of this, the effort that had to be made to provide, in June 2019, the necessary documentation to apply for the "Initiative of Excellence – Research University" competition should be considered.

This transformation process will only be completed in 2020 and the new management bodies already established have been in operation for a very short time. Therefore, there is still not enough experience to assess the effects and pros and cons of the changes, particularly with regard to the governance structure and decision-making processes. The new reality needs to be closely monitored so that corrections and adaptations, both in structure and processes, are introduced as soon as difficulties or deficiencies are detected.

But WUST can face the challenges with self-confidence and be proud of what it is doing, since it is recognised as an institution that offers quality education and is practicing excellent research in various scientific fields. The university has a clear research orientation and is strongly supported by local stakeholders and industry. The team noted a high level of staff commitment to the institution, which has excellent facilities and provides a stimulating learning environment. Students seem to be happy with their experience at WUST, mainly due to the quality of teaching, very much oriented towards addressing technical subjects linked to the business environment. The very good work done by the units of the university that are engaged in the quality of life in the institution should also be emphasised.

The team also witnessed that there are infrastructures and human potential capable of producing good research. Nevertheless, it is clear that WUST is mobilising itself to increase scientific productivity, obtain more competitive funds, and increase the commercialisation of research results, without neglecting to strengthen internationalisation.

However, there is still considerable scope for improvement in various areas of university activity, and it is expected that in the near future WUST will continue to face significant challenges. Fortunately, WUST also has the potential to successfully address them.

The team wishes WUST great success and is confident that it will be achieved.



## *Summary of the recommendations*

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### *With regard to governance and institutional decision making:*

- WUST should closely monitor the efficiency and effectiveness of governance-related functions under the new structure, and be prepared to make adjustments as appropriate.
- WUST should define clearly and explain the responsibilities and the powers of the decision-making bodies and those that lead them.
- WUST should prepare the next generation of managers for the University from among its teaching staff.

### *With regard to quality culture:*

- WUST should establish an organisational unit for quality assurance in education, research, and outreach, reporting to the top management.
- WUST should promote awareness of quality assurance mechanisms through student representatives, namely through student unions.
- WUST should review its internal information/data system on educational issues to collect additional relevant information.
- WUST should collect student feedback and assess teaching performance more frequently, including by exploring alternative mechanisms (e.g., reference groups).
- WUST should reconsider its overall quality assurance system with an eye towards:
  - aligning with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), part 1;
  - optimising the relevance of information obtained from the process, and reducing the reporting burden for teaching staff.

### *With regard to the management of research and use of research results:*

- WUST should improve the awareness of staff on rules regarding the reducing of the teaching load reductions for staff active in high-quality research, and ensure consistency across faculties.
- WUST should explore innovative ways to improve the attractiveness of the university for young talent.
- WUST should improve the integration of its doctoral school in the research process.
- WUST should establish policies and measures to mitigate the risk of imbalance between industry-oriented research and research required to retain research-oriented university status.
- WUST should define clearly the mandate of the Science Discipline Councils and the Board, and provide the means and the instruments to implement it.

- WUST should articulate a clear research strategy that will define institution-wide research priorities and assign resources accordingly.

*With regard to teaching and learning:*

- WUST should formulate and implement a policy and measures for improving staff knowledge of teaching and learning methods that promote student-centred learning.
- WUST should consider the establishment of more systematic pedagogical support for teaching staff.
- WUST should formulate a strategy for mitigating the risk of decreased importance of teaching and learning.
- WUST should expand the use of the e-learning platform.

*With regard to service to society:*

- WUST should activate the Social Council soon.
- WUST should continue to engage with local and regional society.

*With regard to internationalisation:*

- WUST should introduce a more strategic approach to the development of international activities and partnerships with respect to:
  - education, research and administration;
  - selection of research areas and study programmes that have the greatest potential;
  - targeting of priority countries and international partners.