



1st Progress Review Conference of the Universities participating in the “Excellence Initiative – Research University” programme

PRE-EVENT QUESTIONNAIRE

Politechnika Wroclawska / Wrocław University of Science and Technology

- 1) Which of your university’s original objectives (when applying for a 10% increase in funding) have been chosen to retain having received a lower funding level? How is progress being reviewed?**

Despite the lower funding level, the core objectives related to scientific excellence, internationalization and governance have been retained.

These include increasing the number of JCR publications (particularly in Q1 journals, with a high citation potential and in international cooperation - indicators I1-I3, optional OI1), attracting foreign researchers for 1Y+ visits and permanent positions (OI4), implementing a performance-based motivational system for exceptionally successful scientists and research group leaders (financial incentives and teaching load discounts; R2P program in question #6), changing the style of leadership (promoting the independence of young and successful team leaders and their impact on the decision-making processes, increasing the participation of women in managerial bodies, e.g., median age of the newly elected Deans is 47; 4 out of 13 are women, previously 2), and making the command of English common among the university's administrative staff (ESLA program).

Expanding one of the original objectives, we have introduced a new paradigm in internet presence and are in the process of making English the parallel language of Internet communication and the default one on LinkedIn (World-Wide Visibility program; complementary to the International Visibility program).

We have also been planning to substantially increase staff and (under)graduate student mobility, however, the COVID pandemic has forced us to cancel a number of visits scheduled for 2020.

- 2) Which measures have been added, deleted or modified following the recommendation of the reviewers? What changes to university strategy and policy have been made in the light of evaluation and the outcome of the funding competition?**

To address the "imbalance between improving human capital and prioritization of infrastructure" we have completely redesigned the targets focusing on human capital. A think-tank was formed to tackle the "concrete actions are missing, actions proposed are not ambitious and realistic enough" critique.

It has canceled some and substantially modified other programs, as well as designed new ones on the basis of the most successful pilot programs running at WUST (see #4).

Despite adverse pandemic conditions, we have been able to "recruit prominent scientists" as full time employees: foreigners (e.g., Prof. Kainer, DE; Dr. Sotiros, GR), expatriates (e.g., Dr. Rosiek-Pawłowska, ES; Prof. Sujecki, GB) and Polish nationals (e.g., Prof. Maśka, Dr. Sajna).

The newly elected Rector, Prof. Wójs, offers a major change in the style of leadership and addresses the "quality of university governance and management certainly has to improve" recommendation. Young, dynamic and a highly successful theoretical physicist with extensive international experience (10Y+ spent at the University of Cambridge and the University of Tennessee; member of Academia Europaea) will surely propel WUST in the direction of internationalization, collaboration with top research units and scientists worldwide, modern-style management, competent administration and efficient IT support (see #6).

3) Did the university change/reduce the Priority Research Areas (POBs)? What is the scope of such change?

Taking into account the most recent trends, we have restructured the POBs to better reflect our research potential and output in 2019. In the IDUB application, our indicators unnecessarily included the majority of JCR Categories related to the MNiSW disciplines covered by the POBs. This decreased the reported values substantially, particularly in comparison to the other applicants.

The revised POBs, although retaining the core research focus, are built around only those Categories in which WUST excels also in the more recent 5Y period (2015-2019). E.g., POB1 has been reduced from 28 to 12 Categories centered around ICT and Economics for Sustainability; Indicator I1 increased from 8.5 to 11.3 for 2015-2019 and I2 from 0.86 to 0.94. In POB3 we have replaced 5 Categories shifting the focus towards Biomedical Engineering; I1 increased from 5.1 to 14.7 and I2 from 0.61 to 1.08.

A further revision of the POBs is planned in the coming months after analyzing Topic Clusters for 2019-2020.

4) What concrete measures has the university taken to encourage cutting edge research? What evidence can you provide of continuing promotion of research excellence at the highest levels of the university? Has this been achieved using alternative sources of funding, apart from the 2% subvention increase?

In 2016 we have started a pilot program, later renamed Diamond Cutters, which selects the top performing and eager to conduct research Bachelor level students and engages them in leading research groups. E.g., by the time they obtained their MSc's, 5 Applied Math students working with Prof. Weron have coauthored from 3 to 8 JCR articles each and received the prestigious Diamond Grant (DG; 2 in 2019, 3 in 2020); all are pursuing their PhD's in the WUST Doctoral School.

In 2019 WUST had 4 DG laureates (out of 85; surpassed only by JU, UW and UAM), in 2020 - 7 DG laureates (out of 69; surpassed only by JU and UW). Moreover, in 2020 WUST had a record 18 laureates (out of 200; ex aequo with JU) of the Ministry's 3Y scholarship for outstanding young scientists.

Another successful example is the Yes You Can! program - a series of in-house tutorials and seminars for Early Stage Researchers (ESRs) and less-internationally active academics, led by leading scientists in the discipline on state-of-the-art practices in conducting and publishing academic research.

A pilot program has been implemented in the Management Sciences in 2018 and boasts a 20% increase in the number of JCR articles in 2019 and an expected 100% increase in 2020: 21 articles in 2018, 26 (13 with 140-200 pts) in 2019 and 31 (14 with 140-200 pts) in Jan-Jul 2020. This year the program has been extended to other disciplines.

These two programs, together with the ones described in #6, particularly the performance-based funding system, provide concrete examples of measures that WUST has taken to encourage cutting edge research at all levels, ranging from students/PhD students-to-be to ESRs to prominent academics building/expanding their research teams.

No alternative sources of funding have been used for this purpose so far, however, making the programs university-wide may require such actions. Successful commercialization cases, like the one of Prof. Drąg (see #7), may provide alternative sources of funding.

5) What progress has been made regarding establishment of a federation or merging with other institutions from the region, particularly in case of universities which received relevant recommendations?

Although we have not received relevant recommendations, WUST has initiated the Wrocław Center for Technology and the Prevention of Cardiovascular and Cancer Diseases (WROC NET), which combines common interests and research potential of WUST, Wrocław University of Environmental & Life Sciences (UPWr) and the Medical University of Wrocław.

The proposed initiative is a test ground for the evaluation of potential benefits and obstacles in creating a federation of the three universities. The unique combination of the scientific potential and clinical experience in the area of the above-mentioned diseases, bioinformatics, engineering and food sciences, as well as technology and materials engineering, will allow to create a center for the prevention of cardiovascular and cancer diseases, initially for Lower Silesia, ultimately for the whole country. An analysis of the complementarity of the infrastructure, research potential and teaching curricula has been performed. A decision has been already made to redesign WUST's IT system to be compatible with that of UPWr.

As the next step, a joint interdisciplinary doctoral school is planned to be established, as well as a unique academic career system, attractive for scientists returning from internships abroad. During the pandemic, the universities have also coordinated anti-COVID actions, including psychological help centers for students.

6) What steps is your university taking in order to increase the likelihood of enhanced levels of funding being secured in future rounds of the IDUB programme?

The above mentioned programs (Diamond Cutters, Yes You Can!) will be expanded to cover other disciplines, with a particular focus on POB-related ones. The core of the currently being introduced performance based funding system is the Research-to-Payroll (R2P) program - a set of financial incentives and teaching load discounts for authors publishing in top ranked journals (with 100% bonuses for first time achievements, e.g., the first article for 140 pts, for 200 pts, the first book for 200/300 pts) and PIs leading prestigious research projects.

To redesign the IT system to meet today's requirements we are implementing the IT 4.0 program, which offers a fully digital document workflow and real-time evaluation of all units; the WUST structure is being fine-tuned and the managerial staff - including the Department heads - rejuvenated to aid in implementing it. The World-Wide Visibility (WWV) program makes English the parallel language of Internet communication and the default one for LinkedIn.

To complement this change, the WUST webpages are being redesigned to be attractive and informative particularly for potential students, foreign collaborators and business partners.

Finally, we are introducing the English as a Second Language for Administration (ESLA) program, which is based on FCE/B2-equivalent exams for university administration, initially for the core units and ultimately for all, and mandatory English courses for those who require improving language skills.

7) The worldwide impact of measures and limitations introduced as a consequence of the COVID-19 pandemic should be taken into account in the implementation planning, and institutions should be driven by the will to maintain strategic development as planned. The good use of digital means of communication has a crucial role to play. Thus, universities should see to it that they are up to this challenge. What actions have been taken by your university in order to reduce the negative impact of the pandemic on the implementation of the university development strategy?

WUST has not treated the pandemic only as a threat, but also as an opportunity. We have been at the forefront of the fight against COVID from the very outbreak of the pandemic.

Already in March, the group led by Prof. Drąg published a pioneering study (preprint on biorxiv.org) on medically important SARS-CoV-2-Mpro protease. These results have attracted the interest of both the academia and the industry leading to a commercialization in August (with Peptide Institute, Inc., Japan).

In May the group released another preprint on substrate specificity and biochemical characteristics of the second coronavirus protease SARS-CoV-2-PLpro. Currently it is working with scientists worldwide on drug retargeting towards viral and human proteases responsible for COVID development.

Also in March, Prof. Krüger founded the international MOCOS (MOdelling COronavirus Spread) group, which has performed predictions and issued recommendations for the authorities in Poland and Germany, in particular related to reopening of schools and universities.

In an attempt to aid the Polish healthcare system, employees and students from the Faculties of Chemistry and Mechanical Engineering joined the action of producing face shields. A digital model developed by WUST was used to construct an injection mould to prepare polypropylene bands. Over 20 000 face shields have been produced and distributed free of charge among hospitals, retirement homes and schools.

Although the COVID travel bans have forced us to cancel a number of scientific visits, both outgoing and incoming, we have maintained close contact with our collaborators worldwide via digital means of communication. Apart from having an MS Teams license, WUST purchased the corporate package of Zoom to offer alternative means of conducting on-line meetings, lectures and workshops. Naturally, the access to the digital contents of the WUST library has been possible throughout the lockdown to the researchers and students via a proxy server.