



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

PRE-EVENT QUESTIONNAIRE

Politechnika Łódzka / Lodz University of 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?

The goals for 2% funding have been prioritized to maximize chances of getting the 10%:

- work on a proactive recruitment strategy for young researchers has been launched - heads of 12 councils of scientific disciplines recruit outstanding students and doctoral candidates to involve them in research
- Data and Strategic Analysis Centre (DSAC) launch has been expedited to improve management of the university; it collects data on staff, grants, international relations, equipment; an IT system supporting DSAC activities is under development
- a scheme has been launched to reward staff for outstanding research performance and involvement in research grants; an incentive-based remuneration system for research publications has been implemented (min. 70 MNiSW points); a budget has been allocated for Open Access publications
- long-term program for forming interdisciplinary centers of excellence at TUL, led by leading researchers, is being implemented; 5G Competence Centre (<https://centrumkompetencji5g.pl/>) has been launched with Ericsson; application has been submitted to NCBiR to set up a Universal Design Centre

Progress monitoring:

- indicators for ongoing monitoring of research activity in TUL scientific disciplines have been defined
- CRISP TUL app for monitoring and simulation of the level of filling in publication slots by TUL researchers has been developed
- we have been taking part in institutional rankings, which allows us to monitor TUL research strengths and weaknesses

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?

We have divided the measures into the following three types.

1. High priority:

- development of a proactive recruitment strategy for young researchers (also from abroad, e.g. from Eastern European countries); independent experts will be invited to validate the recruitment system
- increased attendance at EU Open Info Days (Horizon Europe, CHIST-ERA) to maximize chances of participation as a partner in international projects
- a programme to set up 60 co-teaching pairs of TUL academics and eminent international researchers has been launched to implement a research-based learning model
- participation in institutional rankings focused on research excellence, e.g. Times Higher Education World University Rankings and QS World University Rankings

2. Modified:

- University governance and management system has been undergoing reconstruction since the election of the new top administrators, e.g. Data and Strategic Analysis Centre (CDAS) has been established
- resources allocated to technology transfer and spin-offs have been increased to lay groundwork for long-term impact
- improvement of the University's international profile (new website launch in Oct. 2020)
- resources have been earmarked to support research activities

3. Reduction

- funds for equipment purchases from the IDUB budget have been reduced
- to ensure more focused implementation of the IDUB project, the planned 32 actions have been reduced
- to be focused the planned 32 actions have been reduced to 10

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

We have decided to keep the defined POBs, however, we have prioritized the subtopics within the individual POBs (the current number of projects for each POB is shown in the parenthesis):

POB1: Innovative applications of artificial intelligence: deep learning, virtual reality, medical and industrial diagnostics, robots, cloud computing, management strategies, data analysis (19)

POB2: Smart and secure infrastructure: 5G, cyber security, supportive environment, sensor networks (IoT), Industry 4.0 (16)

POB3: Systems and materials from nano- to macro-scale: nano- and meta-materials, lasers, biosensors, textronics, intelligent building materials, microsystems, implants (17)

POB4: Circular bioeconomy: biotechnology, food safety, environmental monitoring and waste disposal, renewable energy, clean technologies (10)

POB5: Chemistry for industry and medicine: radiation technologies, smart polymers, organic electronics, hydrogels, chemical analytics, molecular modelling, elastomers (25)

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?

TUL has undertaken the following efforts to encourage scientific research of the highest global standard:

1. Funds have been allocated for the "Strategy for the improvement of research and teaching effectiveness at TUL" (900 000 zł) and for the "Intensification of TUL international cooperation by participation of staff and doctoral candidates in priority research areas and by subsidizing open access publications" (budget increased to 600 000 zł). The total budget for the measures related to science and research within the performance-based budget is over 1 600 000 zł, which stands for more than 60% of that budget.
2. The rector of TUL annually awards monetary prizes for research achievements in 4 categories:
 - 1) for the best scientific publication,
 - 2) for the youngest first author of a highly scored scientific publication,
 - 3) for the most valuable implementation of a technology developed at TUL,
 - 4) for the highest number of citations of a TUL researcher.
3. A project funded with the funds from the Ministry of Development has been launched by the DIH5G (Digital Innovation Hub 5G) consortium which includes the National Institute of Telecommunications – the State Research Institute (leader), Ericsson and Fundingbox companies.
4. A grant of 1 200 000 zł has been acquired in the Innovation Incubator 4.0 competition, for commercialization of research by spin-off companies and for international promotion of research; the project is carried out by the TUL Centre Technology Transfer.
5. In 2020, TUL is organizing national Tele- and Radio Communications multiconferences (a hybrid event) (<http://kkrrit-kstit.p.lodz.pl>); they are the largest scientific conferences on telecommunications in Poland, where strategic directions for the development of ICT research are set out.

6. A European Regional Development Fund grant of 9 2000 000 zł has been acquired for design and construction of a passive building implementing intelligent building technologies.

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?

1. Implementation with the Polish Mother's Memorial Hospital – Research Institute of the Operational Programme Digital Poland (2020-2023) grant "MDB-MEDICAL DATA BANK Virtual platform for medical data and modern diagnostics". The project is the first step in the development of stronger and more structured cooperation with the Medical University of Lodz (UMED). Many TUL researchers collaborate with UMED in the area of technical support for medical research, yet these are individual collaborations.
2. TUL cooperates with the University of Lodz and the University of Social Sciences in Lodz within the framework of the clusters it coordinates: the ICT Polska Centralna Klaster (<https://www.ictcluster.pl/>) and the logistics cluster LODZistics (<https://lodzistics.pl/>). As partners in the clusters, the universities carry out projects aimed at involving entrepreneurs and employers in the process of education and collaborative implementation of EU grants.
3. As a member of the Covenant of Academic Technology Transfer Centres, each year TUL organizes the PACTT SCIENCE BUSINESS INNOVATION EXPO (psbi.pl), the aim of which is to commercialize technologies developed at universities and research institutes. In 2020 the event is planned in a hybrid form.
4. TUL fosters relations with the region's technology companies. Every year, the Day of Electronic Engineer and the Game Development Team Competition are organized (<http://gry.it.p.lodz.pl/main/index.php/pl/>) involving businesses and 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?

We have:

- 1) launched Data and Strategic Analysis Centre to facilitate effective university management,
- 2) successfully completed international institutional accreditation programs - European University Association - Institutional Evaluation Programme and Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur, focused on research and innovation effectiveness; the accreditation resulted in an in-depth analysis of TUL scientific and research performance and recommendations for optimization,
- 3) started applying for accreditation by Accreditation Council for Entrepreneurial and Engaged Universities,

- 4) budgeted resources to promote research effectiveness, support participation of TUL researchers (esp. young researchers) in international networks and grants, monitor research activity (10 applications for Horizon grants submitted in 2020),
- 5) launched the "Educational research fast-track" program for gifted students and PhD candidates, part of the recruitment of young researchers,
- 6) taken part in new institutional rankings focused on research excellence, which has provided us feedback on TUL strengths and weaknesses,
- 7) we are developing an internal system of calls for proposals to be funded with the 2% grant to promote interdisciplinary centers of excellence at TUL,
- 8) been monitoring the new TUL 5G Competence Centre, Interdisciplinary Research and Development Centre for Advanced Materials, Intelligent Management Systems in Building and Construction Industry 2020+.

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?

In the face of the pandemic, the main activities of the university focused on two areas - education and management. Majority of lectures, tutorials, projects, seminars, and some of the laboratories were conducted using distance learning methods and tools. As for laboratory classes, however, only those where the participation of students and especially their direct involvement was smaller than the demonstration by the instructor were conducted remotely with the students being given individual sets of results to process and analyze. The implementation of that process was enriched by the development of monitoring tools - also with considerable involvement of students, as well as procedures for verification of learning outcomes, including exams. These tools were also used to provide teacher training on implementing modern teaching methods (flipped classroom methods).

We have recognized the potential of e-learning long before the COVID-19 pandemic. In 2017 we created an e-learning Center supported by strong IT infrastructure. Thanks to these decisions the transfer to massive scale distance learning went smoothly. In the lockdown, the Centre provided common training for academics and students on using WIKAMP (virtual campus, <https://uci.p.lodz.pl/uslugi/wikamp>) implemented on the e-learning platform Moodle.

IT infrastructure was further enhanced and system services were modified based on feedback from academics and students. In the winter semester, the demand for WIKAMP services increased threefold. Over 500 academic teachers who delivered 9750 two-hour remote classes (webinars) used the platform. 80% of courses were taught remotely.

In the field of management and information dissemination and carrying out research projects (national and international), Microsoft cloud services, in particular MS Office 365 TEAMS package were used on a large scale (the number of TEAMS teleconferences exceeded 30 000/month whereas the e-mail system handled on average 3 million emails/month).