



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

PRE-EVENT QUESTIONNAIRE

POLITECHNIKA GDAŃSKA / GDAŃSK UNIVERSITY OF TECHNOLOGY

- 1) What evidence can be provided for early cultural change within the university, following selection in the first round of IDUB (e.g. acceptance of an enhanced and widely held ambition to perform cutting edge research)? Which measures have been undertaken to date for creating, supporting and maintaining an atmosphere and attitude of change and positive development throughout the institution?

The early cultural change within the University includes:

- 1) increased scientific ambition of researchers,
- 2) rising understanding of the fundamental role of internationalization in all university missions,
- 3) growing acceptance of mission-based research paradigm (instead of discipline-oriented),
- 4) broad acceptance of deep organizational changes.

The rise in ambition can be evidenced by significantly increased number of paper submissions to the highest-impact journals. Based on the past statistics, the IDUB plan assumed 40 publication rewards in 2020 for papers in the highest decile journals, but as many as 110 publications were actually rewarded in just the first 7 months of 2020 (nota bene for papers published in the highest 5 percentile journals!). Regarding internationalization, the change is confirmed by the broad engagement in preparing new English-based study courses (164 new courses introduced in 2019/2020) and increasing interest in inviting visiting professors (more than 60 VP missions completed in this academic year). The growing acceptance of mission-based research is evidenced by high interest of researchers in the interdisciplinary PRAs defined in the IDUB plan (cf. the answers to Qs 5 and 6). Also, broad consensus was reached on significant reduction of the statutory role of discipline-oriented management of research in favor of PRAs.

The recent far-reaching organizational changes include a merger of two faculties into one, the introduction of new organizational structures of faculties (based on flexibly formed research teams and institutes) and the commencement of consolidation of research infrastructures (into core facilities). The changes all met with favorable reception from the GUT community.

The measures undertaken to date for supporting desirable atmosphere and attitude throughout GUT largely overlap with the measures undertaken to disseminate and promote the plan among the academic community (cf. answer to Q3 and other Qs).

2) How is the implementation of the plan proposed by the university being governed? Who are the leaders of the implementation process? What are the measures for internal monitoring of progress in implementation of the plans?

The central governance of IDUB implementation is provided by the statutory authorities (rector and vice-rectors). Central administrative management is effected by the new IDUB Section in the Project Management Office (PMO).

Subject-matter management is assigned to the newly created PRA centers (cf. answer to Q5). Their structure includes coordinators and center boards. They are local granting bodies, each composed of staff members from most faculties. They assess grant applications and give recommendations to the rector for award decisions. Recently, the statutory role of scientific discipline boards in the management of research has been radically reduced in order to strengthen the role of PRA centers.

Faculty deans manage the human resources and research infrastructures. They offer these resources to PRA centers for the implementation of IDUB programs.

Hence, the leaders of the implementation process are principally the rector and vice-rectors, the coordinators of PRA centers and the head of the PMO.

The internal progress monitoring is coordinated by the PMO. The latter reports directly to the Vice-Rector for Scientific Research. Guidance from external stakeholders is provided by the University Council. The international Scientific Effectiveness Board foreseen in the plan has not been constituted yet, largely due to the pandemic, but it is expected to be established later this year (so far a local monitoring body called Research Quality Board has been established).

3) What measures has the university undertaken to disseminate and promote the plan among the academic community?

The measures undertaken by GUT include:

- 1) High-profile events (incl. ceremonious Senate session attended by Deputy Prime Minister J. Gowin, press conference promoting PRA centers attended by an Undersecretary of State, joint IDUB-related seminar of Medical University of Gdańsk and GUT attended by the Mayor of Gdańsk).

- 2) Establishment and promotion of PRA centers; seminars of PRA centers (held from December 2019 to February 2020) – open to all interested in joining.
- 3) Numerous news items on the University homepage and in GUT Newsletter; dedicated IDUB website.
- 4) Frequent dissemination of news and information straight to the community members via email.
- 5) Publication of IDUB grant programs (11 to date) opening opportunities to apply for IDUB-dedicated financial support and demonstrating tangible benefits brought to the community by the project.
- 6) Establishment of a team dedicated to internal and external promotion and dissemination of IDUB (with a newly employed PR specialist).

4) What are the main measures taken by the university to improve the quality of university governance and management, including quality-enhancing organizational changes?

The main measures to improve the quality of governance and management are:

- 1) quality-enhancing organizational changes incl. establishment of PRA centers (cf. answer to Q5); a decision to merge two existing faculties; introduction of new organizational structures of faculties (based on institutes and flexibly formed research teams); the consolidation process of research infrastructures (into Core Facilities);
- 2) organizational changes in central administration incl. establishment of the IDUB Section (new employees) within the PMO and establishment of the Welcome Center (new employees) in an attractive and easily accessed office space;
- 3) reduction of the statutory role of scientific discipline boards (to enhance the mission-based interdisciplinary approach);
- 4) drafting new Strategic Framework of the University (for 2021-2030);
- 5) introduction of new remuneration rules permitting the use of financial incentives foreseen in the IDUB implementation plan;
- 6) new rules pertaining to travel expenses, expressly addressing the increased international mobility foreseen in the IDUB plan;
- 7) establishment of a team dedicated to internal and external promotion and dissemination of IDUB;
- 8) organization of training workshops in managerial skills for the University staff;
- 9) systematic critical studies into the management processes at GUT aimed at optimization thereof (including management of R&D services, employing international researchers, linguistic translation processes and more).

5) What are the main administrative measures taken by the university in the Priority Research Areas (POBs) including focusing and integration of research teams? What additional sources of research funding dedicated to POBs have been secured to date following success in the IDUB competition?

The main administrative measures taken by the university in the PRAs are:

- 1) Establishment of PRA centers.
- 2) Open seminars of the PRA centers.
- 3) Joint seminars of GUT and the Medical Univ. of Gdańsk.
- 4) Workshops on the management of PRA centers in the context of faculty-based organizational structure.
- 5) Issuing or drafting IDUB grant programs to be managed by PRA centers.
- 6) Steps taken to establish a union of universities with the Medical University of Gdańsk and the University of Gdańsk (cf. answer to Q6).

The PRA centers are new organizational units of GUT set up expressly to handle research activities in the PRAs defined in the IDUB plan: BioTechMed Center, EkoTech Center, Advanced Materials Center and Digital Technologies Center. They are composed of center coordinators and center boards, the latter formed by academic staff from all faculties. The inauguration of the activities of the centers had the form of open seminars which took place from Dec. 2019 to Feb. 2020 (400+ researchers delivered 155 talks).

Additional sources of research funding obtained during the IDUB execution (academic year 2019/2020) include 12 international grants (from H2020 and Norwegian Financial Mechanisms) and 9 national grants (from NCN and structural funds) amounting ca. 120 mln PLN assigned to GUT – a dramatic increase compared to 2018/2019 with ca. 42 mln PLN. Other sources are grants dedicated to PhD students, grants for infrastructure, income from R&D contracts and more.

6) What consideration has been given to inter-institutional collaborations within Poland to enhance, for example, research that crosses traditional disciplinary boundaries? What progress has been made regarding establishment of a federation or merging with other institutions from the region, especially in case of universities which received relevant recommendations?

Domestic inter-institutional collaboration is particularly intense between GUT and the Medical University of Gdańsk (MUG). Three joint seminars were organized during the IDUB implementation. More than 30 research teams presented their cooperation offers and the numerous informal talks accompanying the events led to establishing numerous joint initiatives. Another example of strong interdisciplinary cooperation is that between GUT and the World Hearing Center in Kajetany nr Warsaw. GUT also takes part in a variety of international project consortia with other Polish universities. Just a few examples of such consortia are:

- EuroS@P (European Road Safety Partnership) with Warsaw University of Technology (UoT) and Cracow UoT (grant awarded in ERASMUS+ Strategic Partnerships).
- Project consortia in the area of resource recovery from waste and wastewater (WASTEVALUE with Poznań UoT and Silesian UoT and SIREN with the latter and the Univ. of Warmia & Mazury (grant awarded within Norwegian Financial Mechanisms).
- Project consortium preparing a proposal in tourism statistics and modeling Polish transportation (with Cracow UoT).

Formal steps have been taken towards the establishment of a federation of three Pomeranian universities: GUT, MUG, and the University of Gdańsk (UG). The authorities of these universities agreed on the statute of the formal union of universities (to be established in September 2020 under the name of Fahrenheit Union of Universities in Gdańsk).

7) What measures have been undertaken to identify, train, and support the next generation of international-quality researchers? How implementation of the IDUB plan contributed to enhancement of doctoral training, including recruitment to doctoral schools?

The measures undertaken to identify, train and support the next generation of international-quality researchers are inter alia the following activities addressed by their corresponding IDUB programs (their short identifiers are Latin names of elements):

- 1) Attracting most talented candidates for study at GUT (ACTINIUM, URANIUM).
- 2) Supporting most talented students (PLUTONIUM, TECHNETIUM, RADONIUM, PROACTINIUM).
- 3) Attracting promising PhD students (POLONIUM: International Doctoral Fellowships).
- 4) Supporting professional development of young researchers by career-triggering grants (ARGENTUM), training missions in renowned international research centers (AMERICIUM: International Career Development, EUROPIUM: Short-Term Outgoing) and contacts at GUT with world-class researchers (EINSTENIUM: Short-Term Incoming Visits).

The above programs are complemented by projects with external funding offering support for conference participation of PhD students and international visiting professor missions connected with PhD studies. Other projects support incoming PhD students (for instance a NAWA-funded project for bilateral exchange of academics between Poland and India will bring 4 PhD students from Shiv Nadar University for 24-month periods starting in January 2021).

It is worth mentioning that PhD students, just like academic staff, can benefit from the NITROGENIUM: Supporting Excellence in Publishing program (active permanently).

To increase the international dimension of PhD studies at GUT and adapt them to the implementation of IDUB, we decided that the recently established Doctoral Schools would totally rely on English in all activities, including study courses. We have recently applied for a grant in the NAWA STER program whose objective is to support on a systemic basis the internationalization of doctoral schools.

Recruitment to doctoral schools has significantly suffered from the pandemic, and thus we plan an additional recruitment round in the fall this year.

8) What progress has been made to date in implementing human resources development programmes and in recruitment of researchers (whether Polish citizens or not) from universities outside Poland?

The programs and activities related to the youngest prospective researchers (candidates, students and PhD students) have been reported in the answer to Q7. Concerning the HR development programs pertaining to postdocs and more experienced researchers, the most important actions started or prepared are:

- 1) Attracting and supporting international postdocs by competitive job offers (NOBELIUM: Joining GUT Research Community – to be published in September).
- 2) Supporting young postdocs, both domestic and international, by offering participation in strong international teams (PLATINIUM: Establishing Top-Class Research Teams, AURUM: Supporting International Research Team Building – ongoing).
- 3) Attracting experienced and renowned researchers (NOBELIUM again).
- 4) Attracting renowned visiting profs for short cooperation missions (EINSTEINIUM: Short-Term Incoming Visits).

In addition to IDUB-funded programs we apply for and use a number of externally funded projects to support employment of postdocs and visiting profs. For example, we hired 3 postdocs for 2020-2023 from Canada, Taiwan and Italy within an FNP grant and a renowned professor from Yale University for 2020-2023 within the NAWA's Polish Returns program. Negotiations are in progress concerning the hiring of professors from Cansas State University, University of Würzburg, Washington State University, INSA Lyon, NTUA Greece and more. Additional funding for employing international professors has also been obtained from the NCN.

9) What specific steps have been taken and what progress in implementation of the plan has been made to date to enhance international engagement (e.g. research collaborations with foreign universities or research institutes)?

The steps to enhance our international engagement include:

- 1) Increasing the scale of visiting professor missions (supported by externally funded projects and soon to be supported by the EINSTEINIUM program).
- 2) Supporting international research team building (ongoing AURUM program and the flagship PLATINIUM: Establishing Top-Class Research Teams – the latter to be published in September).
- 3) Supporting organization of high-profile international conferences (ongoing CARBONIUM program).
- 4) Supporting application for international research grants (ongoing COPERNICIUM program).

- 5) Supporting preparatory research projects aimed to culminate in high-profile grant applications, notably ERC (ongoing ARGENTUM program).
- 6) Supporting outgoing missions in renowned research centers (ongoing AMERICIUM and EUROPIUM programs).
- 7) Supporting membership in international networks and organizations (ongoing HYDROGENIUM program).

The progress can be evidenced by the international grants won by GUT (cf. answer to Q5), including huge H2020 grants InSecTT and BEYOND5 (GUT budget of 5.5 and 5.2 mln PLN, respectively) and completed visiting professor missions (cf. answer to Q1).

A variety of new cooperation agreements have been signed or negotiated, including agreements concerning double degree and joint PhD with Univ. of Palermo, joint graduate program with Univ. of Illinois, joint PhD project with Univ. of Castilla-La Mancha, and scientific cooperation with Korea Institute of Materials Science.

10) What kind of changes has the university initiated in the education system on undergraduate and graduate level?

The most important changes include two new solutions for individual programs of study. One is research-based programs intended for the most talented graduate students. This study path will be tightly connected with participation in research programs. The other path is interfield programs – combining two different fields of study (and also addressed to the most talented students). Two IDUB grant programs have been designed to support successful implementation of the above ideas (Learning Through Research and Supporting Student Research Teams).

GUT offers two more programs aimed at managing and mentoring the most talented students: Supporting Most Talented Students and Talent Management Grants. Two other programs are dedicated to attract highest-quality candidates (Supporting Cooperation with High Schools and Supporting Most Talented Candidates). And finally, the Student Engaging Grants program attempts to involve students in creating concepts and solutions important for the university.

11) The worldwide impact of measures and limitations introduced as a consequence of the COVID19 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?

The following actions were taken to reduce the impact of the pandemic on the implementation of the GUT development strategy:

- 1) Changes in the Statute to approve online meetings and votes of statutory collegial bodies, including the Senate.
- 2) Launching a dedicated IDUB-funded grant program (CURIUM: Combating Coronavirus).

- 3) Stepping up preparations to start the construction of supercomputing center STOS (Smart and Transdisciplinary knOwledge Services); the contractor for 150+ mln PLN works has just been selected, and so the performance of contract should start in the fall.
- 4) Introduction of all-digital procedures for admissions, exams and thesis defenses.
- 5) Establishment of the Center for Innovative Teaching – a new organizational unit whose role is to develop and implement innovative education methods and tools, notably for online use, and assist in applying them by the teaching staff.
- 6) Courses for the academics in gamification of courses, microlearning, use of podcasts, mobile books etc.
- 7) Workshops on the use of external and proprietary eLearning and online communication tools. Workshops on the use of Learning Management System.
- 8) 2,737 new eLearning courses launched since the introduction of COVID19 restrictions in March (meaning a 50% increase in the total number of online courses).

Concerning CURIUM, it is an ad hoc designed call for proposals in applied research or basic research with application potential for fighting the COVID19 pandemic. Its purpose is to broaden the knowledge and understanding of the virus, design new or improved methods of diagnosis, treatment and prevention of the spread of the disease, as well as to improve or better exploit the use of IT tools in this area. Seven project grants have been awarded, all projects to be executed in close cooperation with the Medical University of Gdańsk. In addition to its expected scientific outcome, CURIUM significantly contributes to local and international team building under the pandemic.