



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

PRE-EVENT QUESTIONNAIRE

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- 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?**

Measures aimed at increasing AGH UST employees and PhD students’ awareness of the actions under the IDUB Project at the AGH-UST have been taken. Promotional actions include: managing and updating the Project’s website, webinars on the Project, a handbook, posters and brochures and direct mailing. They are directly conducive to increased interest in, inter alia, the announced competitions. “Cutting edge research”, which is provided for by the Project, requires active involvement of entire teams, which often have to be consolidated in response to this need. Motivational mechanisms are being implemented to create conditions for undertaking such research. What is also important is the mindset, i.e. interest in undertaking such research under the current legal environment and organizational status of the University.

It should also be noted that the situation in 2020 is difficult and some of the planned Actions could not be effectively implemented. The reasons for this include:

- (1) initiating Actions, and thus an insufficient time horizon even as regards the first results,
- (2) pandemic and the resulting constraints on networking and professional activity,
- (3) the end of the Rector’s term of office and the new authorities taking office.

As yet, the University community is not always prepared for perceiving the IDUB Project as a significant shift in the University's overall strategy, which particularly stresses the elite character of the provided education and top-level research. Mental acceptance of this strategy is additionally difficult due to the longstanding way of thinking "from the viewpoint of a faculty" instead of the new approach, i.e. thinking "from the viewpoint of a given discipline". The "research university" is another "mental overlay" which favours publishing widely cited papers instead of publishing in high-end journals, and European grants (ERC in particular) instead of national grants (which are still too rare at the University), etc.

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 Project Manager is responsible for implementing the plan proposed by the AGH UST. The planned Actions are being implemented gradually and with flexibility, taking into account the epidemiological situation, e.g. inbound and outbound trips have been suspended, but we are ready to resume them immediately upon lifting the restrictions. On the other hand, we are implementing those Actions that have not been hindered by the pandemic, especially by responding to urgent needs, e.g. in May, a competition was launched for University grants related to the broadly understood theme of global threats, such as COVID-19.

The implementation leaders are experts from numerous fields who have been appointed as members of the Task Team. The Task Team is supported by the Advisory Board and the Rector's/Senate Committees for Science, Research Infrastructure and Education. To enable seamless project management, a 2-person IDUB Project Office has been established, which deals with the day-to-day administrative and financial matters and supports the Project Manager with organizational activities and monitoring.

Monitoring is executed in compliance with the scheme described in the competition application, though the first six months turned out to be too short and difficult a period to complete the reporting procedure (particularly, in view of the fact that most Actions planned for 2020 were connected with the internationalization of the University).

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

Managing and updating the Project's website, webinars on the Project, a handbook, posters and brochures and direct mailing. Numerous Actions require the approval of the Faculty Committees/Scientific Councils of particular disciplines, which extends the group of people who are directly involved in the plan implementation. It can be best exemplified by competitions for co-financing new research infrastructure, in the case of which applications must be first approved by the Scientific Council, and only then the Senate Committee for Research Infrastructure makes

a decision with the whole University in mind (and not with regard to particular organizational units). The strong conviction about the need to promote the idea and status of the AGH UST as a research university prompted the Project Manager to stand as a candidate for the AGH UST Rector's office. As a result, it sparked a broad discussion on the idea and objectives of a research university presented in the candidate's programme.

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

Specific measures to improve the quality of university governance and management have been taken, such as a change of the University's organizational structure (setting up University research centres, special units for conference organization or supporting international grant applications). It is also planned to establish a national network of university research centres and to incorporate the AGH UST research centres in the European Research Laboratories system.

The change of the University authorities has revived the debate on organizational changes within the University. Actions under the IDUB Project have framed this debate, focusing it on treating the University as a whole, e.g. by promoting those measures that support research teams investigating POBs, which enhances the international standing of the entire University. A crucial step is to change the mindset to see the University through the prism of the different scientific disciplines and interdisciplinary studies, which is triggered by numerous Actions developed under the IDUB Project.

Thanks to the Project, POBs are gaining a key position not only in view of the so-called university grants but especially due to the motivational system that is being implemented as well as the financing (from the IDUB Project funds) system dedicated to purchasing research infrastructure for carrying out research into interdisciplinary themes within POBs.

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?

It is planned to establish University research centres that will provide research facilities and a platform for setting up interdisciplinary research teams to investigate particular POBs. At the first stage, the Action "University grants system for research projects with PhD students' involvement" was implemented, which allowed to test all the procedures. In total, 31 grants were awarded in the first edition, each amounting to PLN 200,000, and 4 grants of up to PLN 200,000 were awarded in the supplementary competition. The research teams that received financing had proposed cutting-edge and globally significant research projects. Additionally, their international experience indicates the potential for carrying out research within international teams. Each grant is assigned to a particular POB.

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Another implemented Action was purchasing research apparatus, which got 50% co-financing from the IDUB Project funds. It is to serve the needs of the whole AGH UST (one of the competition assessment criteria was “the method of providing access to the research apparatus for AGH UST employees and PhD students”). The requested purchases were subject to prior approval by respective Scientific Councils (and as such were aimed to raise the scientific category of particular disciplines) and had to be assigned to specific POBs, stimulating research carried out in these POBs by research teams from different organizational units.

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?

A number of measures have been scheduled to strengthen inter-institutional cooperation in Poland. In the near future, we plan to establish two university research centres. Their legal, formal and factual framework is ready, while substantive works are still in progress. These works are to specify the research area so that the University potential can be most efficiently utilized, at the same time guaranteeing these centres the position of Polish leaders in particular thematic fields (which is a chance for making the best possible use of the potential of the whole country instead of focusing on one institution). The need to set up such centres is also triggered by non-university initiatives providing the framework for future financing of research centres, e.g. the Polish Roadmap of Research Infrastructure or strategic programmes financed by the National Centre for Research and Development.

Since the AGH UST is a technical university actively cooperating with its business environment, we are also implementing a programme aimed at financing internships for university staff in companies with best international standing. Thus, we not only conduct research and deal with its implementation for the benefit of our business partners, but we also take into consideration their demands related to professional qualifications of our graduates. These internships are aimed to enhance “experience based knowledge” to supplement the University’s own offer (“science based knowledge”).

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?

Most Actions under the IDUB Project at the AGH UST are targeted at young scientists who are encouraged to conduct world-quality research. Some Actions are directly related to international exchange, which had to be suspended due to the pandemic.

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Still, other Actions are taken to encourage:

- (1) best school-leavers to take up studies at the AGH UST (including the “Prymusi” project, implemented and financed from the IDUB Project funds),
- (2) best graduates (also from other universities) to study at our Doctoral Schools; this is supported by a scholarship programme for excelling PhD students and also by financing university grants,
- (3) best candidates to apply for the Research Assistant and Assistant Professor jobs by offering them higher salaries than those offered by Polish state universities until now (additional PLN 3,000 for the first 24 months of the contract with the right to an extension).

This year, an open competition for the posts of University Professors will be announced and the successful candidates will be offered not only higher remuneration and funds to finance their own research teams (at least 1 post) but also the so-called starting money to found their own laboratories. It should also be mentioned that one of the requirements for obtaining a university grant was (and will be in the next editions) to include PhD students in the research team. This strategy is to link the most important (additionally financed from the IDUB Project funds) research with providing PhD level education, as PhD students are later a candidate pool for University jobs.

Noteworthy is also the incentive scheme that is being introduced at the University. It offers significantly higher salaries to young researchers who are involved in cutting-edge research published in journals from the TOP-10 List, highly cited and/or internationally patented.

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 following Actions are at the implementation stage:

- (1) a motivational system promoting world-class research (including enhancing international collaboration),
- (2) financing internships for University staff in companies with best international standing,
- (3) financing job placements abroad for young employees and PhD students,
- (4) financing AGH UST scientists’ participation in experiments conducted in international research hubs, e.g. CERN,
- (5) financing sabbaticals,
- (6) financing short-term visits of foreign scientists and grants intended for their long-term stays at the AGH UST,
- (7) launching an online database containing offers of research implementation and international collaboration within POBs,
- (8) appointing university professors with a degree of habilitated doctor by offering them the so-called starting money, etc.

Some of the abovementioned Actions are already being adopted, while others are still at an initial stage (e.g. the incentive scheme). Some of them, in particular those connected with exchange of researchers, have already been prepared in terms of formal and legal aspects, competition rules have been available on the “research university” website for a number of months and preparations are ongoing (e.g. signing agreements with other universities to enable financing of out-bound and inbound visits pursuant to the Act on Science and Higher Education).

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)?

As regards international collaboration, the epidemical situation has made us postpone direct actions (e.g. competitions for foreign researchers with the starting money as well as financing employees and PhD students’ visits to research hubs, e.g. CERN or ESRF), but indirect actions are still being taken:

- a) initiating and consolidating the existing collaboration with foreign universities and other institutions abroad, e.g. by international initiatives such as European Universities (AGH UST is a member of the European Space University network), participation in consortia like European-FEL, purchasing Nature Masterclasses licence, etc.,
- b) encouraging university employees to join in international collaboration, inter alia, by means of the incentive scheme in which international publications are especially valued, and by the system of university grants intended to result in applications for international grants,
- c) financing the open access option for publications co-authored by foreign researchers, which is a stimulus to undertake collaboration for all authors and the institutions they are affiliated with.

As regards inbound and outbound visits, they are fully prepared, the competition rules are available on the IDUB website, and the relevant formal and legal aspects have been perfectly fine-tuned. Competitions can be announced at any time, depending on the epidemiological situation in Poland and in the world.

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

As regards integrating the education process with scientific research, a support programme for new degree programmes related to POBs has been prepared. Two new degree programmes related to artificial intelligence, machine learning and data analysis have been launched:

- (1) Computer Science and Intelligent Systems,
- (2) Computer Science-Data Science.

A new educational quality assurance system and organizational structures for its implementation are already being prepared by the newly established Teaching Support Centre, which is also intended to provide support to academic teachers. Considering the needs and interests of most gifted students, a benefit scheme has been launched for the best candidates, including dormitory accommodation, additional courses and a cultural and sports offer. New human resource policies are being prepared to support upgrading teaching competences by providing a professional development system for academic teachers.

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 fact that direct international collaboration has virtually come to a standstill does not mean a complete lack of collaboration. There are webinars, videoconferences, conferences held remotely via MS Teams, etc. Scientists from all over the world can easily participate in these events from home. In this form, our international collaboration is still maintained. The University has taken the following measures to reduce the negative impact of the pandemic on the implementation of the IDUB Project:

- a) use of the Internet for research, which was also common before the pandemic outbreak for preparing joint publications; the Internet is also used to organize symposia and conferences, most of which are held at the scheduled time but remotely.
- b) maximized use of the Internet in the teaching practice (so that high-quality education can still be provided to students of all cycles of study); the same refers to seminars, which in most organizational units of the AGH UST are held without any distortions though remotely).
- c) mechanisms to ensure a high number of citations for publications that are being prepared now (there is a lot of time for this as laboratories cannot be used), e.g. financing the open access option.
- d) modifying the IDUB implementation plan, which in practice means postponing researchers exchange and focusing on Actions that do not require laboratory work and were originally scheduled later (e.g. promotional activities abroad, e.g. creating a network of AGH UST ambassadors abroad).

On the one hand, the coronavirus pandemic is a threat that prevents researchers exchange. On the other hand, this phenomenon demonstrates a wide variety of global threats, the forecasting, monitoring and public perception of which are being heavily investigated, leading to highly-cited publications. The AGH UST has also announced a competition for 12-month university grants dedicated to COVID-19 and similar civilization threats.