

REPORT OF THE INTERNATIONAL SCIENTIFIC ADVISORY BOARD OF MASARYK UNIVERSITY, BRNO, CZECH REPUBLIC

6th-7th December, 2017

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PREAMBLE

Following its first visit in October 2016, the ISAB provided the direction of the Masaryk University (MU) with a report containing 14 recommendations, the timely implementation of which it considered of key importance in order for MU to reach its primary objective of improving its international standing. These were as follows:

Recommendation 1: The ISAB recommends that MU consider continuing to reduce its student intake, implementing higher admission standards and focusing on attracting the most talented, well-equipped and motivated students.

Recommendation 2: The ISAB recommends the setting-up of program-specific admissions committees composed of 3-5 faculty members and an administrator, who would openly and internationally advertise their respective PhD Program each semester, filter applications and invite for interview only the very top candidates. The invited candidates should then be interviewed by the panel; they should be asked to present their master projects, and tested on their knowledge and understanding not only of the project, but also of the broader subject of study. (It is imperative that all PhD candidates, including internal ones, be interviewed by the admission panel.)

The candidates who pass the interview should then be given the opportunity to visit several laboratories offering PhD places and select their preferred options. The PIs should also list their favourites and a matchmaking process should then ensure that the candidates end up in the laboratories best suited to them. Within the first 6 months, the candidates would have to develop their projects and defend them in front of a committee of at least three people, which would consist of the direct supervisor, a second member of the faculty and an external member from abroad if possible. This committee should then follow the student annually during the course of the project and ensure that he/she is making satisfactory progress, such that a thesis work can be written and defended within 3-4 years.

Recommendation 3: It is recommended that the students leave the university at the end of their PhD to seek opportunities elsewhere. Remaining as postdoctoral researchers in the same laboratory for more than one year after completion of the PhD work should be strongly discouraged. Students should be allowed to return to the *alma mater* only after a period of at least two years.

At this academic level, turnover of talent is extremely important. It also ensures that postdoctoral researchers are recruited from the outside, which offers a greater choice of candidates and the possibility to select the very best.

Recommendation 4: Only PIs who have externally peer-reviewed and funded projects should be allowed to take on PhD students. This ensures higher project quality and avoids awkward situations when panel members sit in judgement of their immediate colleagues.

Recommendation 5: Available postdoctoral researcher positions should be openly and internationally advertised and postdocs should be hired from outside whenever possible. There is a large choice out there and a university such as MU ought to be able to attract very good ones.

The PIs should not be afraid of letting go of their best PhD students. When they return from their postdoctoral stage(s), they will be even better. However, while they are abroad they should not have an ongoing contract with the MU. Returning postdocs must compete for positions with the rest of the world.

Recommendation 6: Vacant faculty positions must be openly advertised in English in top international journals and candidates must be selected by a committee composed of existing faculty and at least three outside (international) members. Promotion of local candidates should be the last resort. Successful candidates should be offered attractive start-up packages, possibly help with housing, schooling etc. with the help of an “international office” to attract top international candidates.

Recommendation 7: Mobility is a key aspect of modern science and existing faculty should be strongly encouraged to take sabbatical leave every 6-7 years.

The fear that the professors may not return from their leave is largely unfounded in the opinion of the ISAB. It is not easy nowadays to find positions in “The West”, certainly not ones as well-endowed as those at MU. Should some faculty stay out, this will provide the MU with vacant positions to be filled in open competition - i.e. a possibility to find someone even better. The ISAB is not aware how sabbatical leaves are compensated, but if the MU were to pay the travel costs, salaries and housing costs of the professors during their stay abroad, this would meet with higher compliance. How this scheme could be funded is suggested below.

Greater visibility of the MU faculty abroad will bring with it the much-desired international recognition, including possibly also the first EMBO members.

Recommendation 8: A revised tenure track process for assistant professors should be created, including a transparent performance review by independent assessors including international academics, which takes into account performance (research publications - particularly international), citations, and international sabbatical activities among other usual criteria.

Recommendation 9: That resources be distributed subject to stringent peer-review and that the grants are fewer in number, but the sums are more substantial, so as to permit the successful applicants to fund, for example, an international postdoc for 5 years plus consumables (paid on e.g. the EMBO scale).

Recommendation 10: That MU design a system for distributing internal funds with mechanisms that reward the desired performance (e.g. by considering the international impact of publications, rewarding rather than punishing the acquisition of external funds through the allocation of overheads).

Recommendation 11: That MU charge for scientific services on a “pay-per-use” basis to research groups and external users based on tariffs that reflect both the true costs and the research priorities of MU.

Recommendation 12: That MU improve its citation score by shifting faculty incentives to strongly encourage publication in international journals (rather than focussing on the number of publications, many of which are in journals that are seldom cited).

Recommendation 13: That MU improve its industry-income score by more active efforts to secure industry income, backed by shifting faculty incentives and overhead allocation mechanisms to encourage sourcing of industry income (notwithstanding that we appreciate that industry income available in the local region may be limited and so efforts may need to look further afield or abroad).

Recommendation 14: That MU make an effort to increase its international visibility by opening its doors to more senior academics from abroad. These should be invited to give lectures, courses and also to spend their sabbatical leave at the MU. Although the latter might require that the MU help the visitors with housing costs, school fees etc., it is an investment worth making, given that the visitors are likely to recommend the MU to their students e.g. as a place to do their postdoc or to start their independent academic careers.

The following brief report summarises the presentations of the MU leadership that were focussed primarily on the progress in the implementation of the above recommendations made during the past thirteen months, and the discussions with the Vice-Rector and the Vice-Deans of the various faculties. It also contains comments of the ISAB that are intended to help the MU leadership resolve problems encountered during the implementation process and to answer questions arising during the visit.

Day 1:

During the morning session, the Rector, Prof. Mikuláš Bek, and the Vice-Rector, Prof. Petr Dvořák, provided the ISAB with a brief overview of the current standing of the MU on the national level, its positioning and perspectives in the new political climate of the Czech Republic, and – most impressively – about its improved world ranking (see also below). The ISAB was extremely impressed to hear this encouraging news, particularly as the discussion took place in the unique setting of the Villa Tugendhardt!

In the afternoon, the Vice-Rector further expounded on the MU world ranking status, pointing out the improvement in all three indices: OS, THE and Nature Index 2017.

The ISAB was also informed about strategies intended to improve the quality of output, be it through internal evaluations, accreditation, or revision/restructuring of study programmes.

The ISAB strongly supports these initiatives, but suggests that these measures should be implemented gradually. The initial stages should focus on motivating the faculty and researchers, e.g. through the deployment of institute-specific SABs or programme steering committees, and only in the later stages (e.g. after 3-5 years) on the evaluation processes. It is also important that evaluations have consequences – both positive and negative – and that they are not carried out too frequently. Evaluation should involve external advisors, who ought to receive input from both, students and faculty. It is also of key importance that the evaluation process conform to international standards and

that practices such as e.g. the inclusion on publications of authors who have not actively contributed to the study be discontinued.

The ISAB then heard from Prof. Martin Bareš about the changes in HR procedures. The achievements made by the MU in this important aspect of university policy were considerable and touched upon most of the recommendations that impact personnel made by the ISAB last year.

The ISAB congratulates the MU on its achievements to make its remuneration and recruitment procedures more transparent, and on its attempts to increase the number of international faculty. The ISAB recommends that the measures adopted for associate- and full professors be extended to the appointment and evaluation of assistant professors. These are generally the most innovative and productive scientists, who are also the most mobile.

In all professorial recruitments, full use of the tenure-track process should be made, including ensuring that the review process is critical and carried out by an unbiased external panel, supported by letters from international experts.

The Vice-Rector then introduced the ISAB to the Postoc@MUNI, the MUNI Award in Science and Humanities and the MU Seminar Series programmes. The ISAB was very impressed with these efforts, which appear to have attracted candidates and speakers of the highest calibre. There is no doubt that these measures will make a substantial contribution, not only to the quality of research carried out the MU, but also to its international reputation – and thus to its standing in the world rankings.

The ISAB applauds the above efforts and suggests that the MU adopt measures that are likely to increase its chances of success in recruiting top international candidates. These include extending the roles of the International Relations Office to offer not only short-term, but continuous support to non-Czech speakers in professional and private life. The ISAB also suggest that the MU review the possibility of offering (free and mandatory?) English courses to all staff who regularly interact with the international MU community. Moreover, the ISAB recommends that all internal communications (E-mails) affecting members of the MU staff be both in Czech and in English. It is also of utmost importance that the web site of the MU be in both languages and that it include not only general information for students, but also for interested outsiders, both academic and public. The pages describing MU faculties should contain information not only about their teaching at both undergraduate and graduate levels, but also about the individual faculty members, their research, their respective groups and publications. The MU might wish to consider creating and intranet accessible to its faculty, which would contain all internal information and procedures, such as legal regulations, application forms, internal job vacancies, MU or public office addresses etc. The front page should contain daily-updated information on MU achievements (publications in top journals, prizes, visits of renown personalities, sport successes etc.) all of which contribute towards the visibility of the university.

The MU might also consider how to better reach out to its alumni and include them in the life of the university. Notable members of the alumni community can often be used to lobby on behalf of the university in different public and political bodies.

Day 2:

The ISAB met at CEITEC with the Vice-Deans of the individual faculties to discuss the progress in the implementation of the fourteen recommendations made by the ISAB in 2016. Vice-Rector Dvořák addressed each recommendation individually and listed not only the successes, but also the problems that were encountered during their implementation. The ISAB was extremely pleased to note the positive attitude adopted by the vast majority of MU bodies towards these recommendations and highly commends the individuals actively engaged in the implementation process. A number of hurdles that were initially considered to be insurmountable have proven possible to overcome with unexpected ease, which demonstrates the willingness of the MU staff to improve on the *status quo*. One problem that continues to cause problems is the hierarchical structure of the university and the role of PhD students within it. During the open discussion with the Vice-Deans it transpired that the MU still employs too many PhD students including a number of students who would not satisfy acceptance requirements of PhD Programs in other European countries. It was also revealed that PhD students are conveniently used by many faculty members to take over their teaching commitments. In the medical faculty, MD/PhD is awarded on the basis of superficial research projects, without the requirement for extra ECTS points and a minimum of 3 years in a research laboratory. Moreover, there are far too many PhD programmes, most of which have unclear admission criteria, regulations and guidelines, curricula and quality controls.

The ISAB addressed the issue of PhD Programs and PhD students extensively in its recommendations of 2016. It now wishes to underscore the need to admit only the top quintile of master students into PhD programs. The ISAB also recommends that small PhD Programs be fused together into programs with broader specialisation within their respective disciplines. Larger programs have greater visibility, encourage interactions between students, provide broader education and have better prospects to attract top students, especially if their admission criteria and curricula are clearly defined. PhD students should focus on research and their teaching commitments should be limited to a maximum of 150 hours during the entire PhD course. (The teaching should be restricted to supervision of bachelor and master's students and tutorials and should not include undergraduate lectures). The students should also be obliged to attend extracurricular courses and gain 12 ECTS points in disciplines not directly related to their topic of research.

It should be remembered that PhD students represent the most numerous export of the university and that they act as the university ambassadors abroad. It is in the interest of the university to export only the best "goods", as these help to improve the reputation, name recognition and standing of the institution. To facilitate this and enrich the experience of PhD students, the ISAB reiterated the desirability of including a period of study overseas within the programmes where possible.

The ISAB further recommends that other junior staff and postdocs be also protected from excessive teaching. These are often the most innovative and productive scientists, whose publications will lead to the acquisition of prestigious grants, which will – in turn – improve the international standing of the university. Undergraduate teaching should be carried out primarily by experienced professors and those who intend to be habilitated. There should be a transparent system detailing the teaching requirements for habilitation in each Faculty and also a list of courses available for those who wish to teach.

The ISAB recognised that in some faculties not all students entered the PhD programme with the aim of pursuing a career in research and teaching. In the faculty of Economics, for example, many students aimed for a career in industry or professional services (especially among those enrolled for the PhD part-time). Also, a PhD in the humanities offers a number of career paths outside of academia. Likewise, a number of the students enrolled for the MD/PhD programme did so to further their careers in clinical practice, given the system of requirements set by the Czech medical system. In these cases, the MU might consider “streaming” specific PhD Programs into different paths - a stream designed to prepare students for a career in academic research and teaching (this should follow the recommendations above), and a stream designed for students focusing on a career in professional practice, which should be designed specifically to further those goals.

CLOSING REMARKS

The ISAB would like to congratulate the leadership of the MU for its efforts to raise the national and international standing of their institution. The achievements made in the past thirteen months are truly remarkable and substantially exceed the board’s expectations. The MU is encouraged to continue its internationalisation efforts, its attempts at improving the transparency of hiring and promotion procedures, and of the distribution of its financial resources, both as far as remuneration and infrastructure funding policies are concerned.

The ISAB would also like to emphasize the need for the MU to become more proactive in science politics, given the forthcoming changes in the political landscape of the Czech Republic and the new mode of distribution of resources earmarked for research and teaching. The ISAB is aware that its recommendations made to date may not be equally applicable to all MU disciplines, specifically with regard to the PhD Programs in non-scientific disciplines and their recruitment criteria. It is therefore suggested that the 2018 visit of the ISAB focus predominantly on humanities.

The ISAB is grateful to the leadership of the MU for taking its recommendations to heart and for making such an enormous effort to implement them. The success achieved in this short time testifies that the MU staff recognises the need for change and that it is ready to help make change possible. This represents an extremely important advance and bodes well for the future. The ISAB is going to continue to do its very best to try and help the MU leadership to achieve its ambitious goal.