

Comprehensive Assessment of Scientific Units and the Impact of Research in Poland

Erasmus+ Capacity Building in Higher Education
Assessing and Improving Research Performance at South East Asian Universities

Prof. Arkadiusz Kowalski *arkadiusz.kowalski@sgh.waw.pl*

Dr Agnieszka McCaleb *amccal@sgh.waw.pl*

**East Asian Research Unit
World Economy Research Institute
Warsaw School of Economics**



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Introduction: objective and research rationale

- The objective of the presentation: to present the system of measuring the impact and quality of research in Poland.
- Observation: modern science requires significant resources because of high complexity (scale, costs, technical) of research projects.
- However, the essential elements of success rest with the capabilities of the human capital using such resources.
- Research assessment systems have become an important driver for the effectiveness of scientific researchers, as they constitute a significant pillar of the social and organizational environment of scientific research.

Basic features of research and higher education system in Poland (1/2)

- **prevailing private nature of universities in Poland**, as there are almost three times more private HEIs than public ones, but the private sector is composed of smaller units, focused mainly on teaching (yet more students study in the public system),
- division into:
 - 1) universities (mostly social sciences),
 - 2) technical universities (engineering sciences),
 - 3) special purpose units such as: medical universities (which in Poland form separate higher education institutions), academies of arts, maritime schools, academies of sport etc.

Basic features of research and higher education system in Poland (2/2)

- the biggest share of **teaching related funds** (mainly from the government in case of public universities) in the structure of revenues in Polish HEIs,
- the governance structure of Polish HEIs dependent on internal forces and largely independent from the external environment, which implies a **large degree of autonomy** of a single HEI, but also not allowing to appoint external expert to govern the institution,
- extremely **uncompetitive remuneration schemes**, resulting in scientists' search for additional jobs outside universities, and less time for research activity.

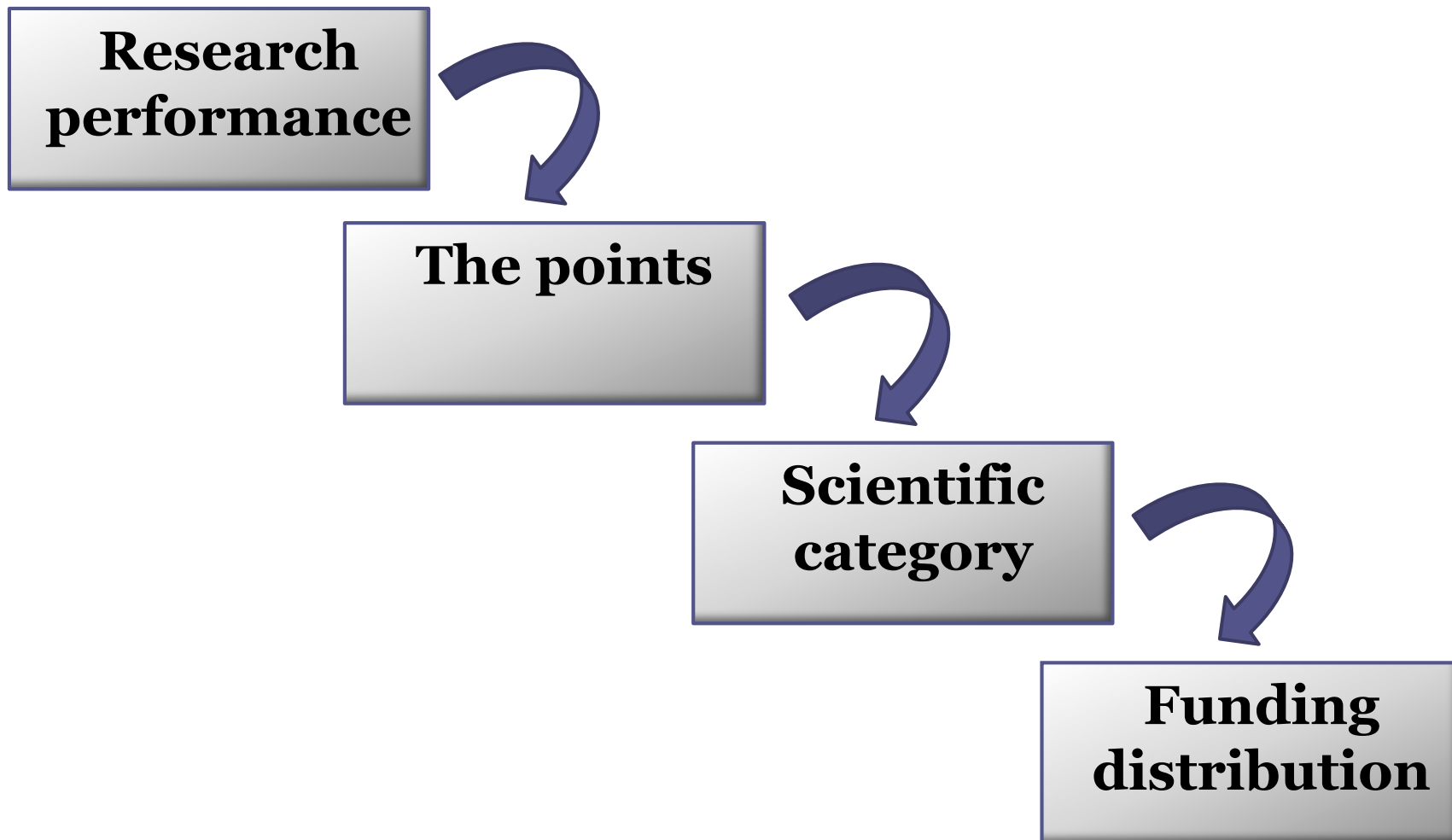
Assessing Research Performance in Poland

- Poland has developed a system called:
„Comprehensive Assessment of Scientific Units in Poland”
- **Responsible body:** the advisory group for the Ministry: the Committee for Evaluation of Scientific Units.
- **Legal basis:** Regulation of the Minister of Science and Higher Education of 27 October 2015 on the criteria and procedure for assigning scientific categories to scientific units (Dz. U. 2015 poz. 2015)

Comprehensive Assessment of Scientific Units in Poland - introduction

- The main objective of the assessment system is to **strengthen scientific performance through funding distribution** to scientific units according to their scientific category, based on **prior research performance**.
- In the process of evaluation, the given scientific unit obtains a specified number of the points, so **research output is translated into ‘the points’**.
- However, the points do not correspond directly to the amount of funding for the research unit, but they result in the **assignment to one of four scientific categories**.

Comprehensive Assessment of Scientific Units in Poland - illustration



Comprehensive Assessment of Scientific Units in Poland - categories

- 1. Category A +:** leading level in the country (37 units),
- 2. Category A:** very good level (308 units),
- 3. Category B:** the level acceptable with the recommendation to strengthen the scientific activity (541 units),
- 4. Category C:** Unsatisfactory level (77 units).

The amount of financial allocation for the specific research unit depends not on the number of obtained points, but on the assigned scientific category:

- A+ category units receive 150% of that allocated to the A category.
- B category receive 70% of the funds allocated to the A category
- C category units receive 40% and only for half a year

Comprehensive Assessment of Scientific Units in Poland - Stages in the assessment of research unit

- 1. Assignment to particular area of sciences:**
 - 1) social sciences and humanities (SSH),
 - 2) sciences and engineering (SE),
 - 3) life sciences (LS)
 - 4) art sciences and artistic production (ASP).
- 2. Rating activity in the 4 past years** (actually years 2013 – 2016) according to the criteria characterizing a given group of sciences.
- 3. The award of the scientific category** by the Ministry of Science and Higher Education
- 4. Possibility of appeal.**

Comprehensive Assessment of Scientific Units in Poland - evaluation criteria M1

- The evaluation parameters were grouped in **four assessment metrics (criteria)**, developed by the Committee for Evaluation of Scientific Units.
- **M1: Scientific and creative achievements (weight 65)**, taking into account such elements, like:
 - ✓ **Monographs**
(max. 25 points, 50 for „excellent monograph”),
 - ✓ **Chapters in monographs**
(max. 5 points, 10 for „excellent monograph”),
 - ✓ **Publications in scientific journals**
(1-50 points, detailed presentation in the next slide).

Polish Journal Ranking

- 1. The A list** (more than 11,000 journals) - journals listed in the Journal Citation Reports (JCR); Five-year impact factors are translated into the number of points (15, 20, 25, 30, 35, 40, 45, and 50).
- 2. The B list** (more than 2,000 journals), which consists of Polish journals. There are 13 criteria, out of which 12 are formal (like the number of authors and reviewers from foreign institutions, the number of articles per year) and one is bibliometric (the predicted impact factor). The numbers of points vary from 1 to 10.
- 3. The C list** (more than 4,000 journals): journals indexed in the European Reference Index for the Humanities (ERIH). These are:
 - National category (10 points),
 - International 2 category (12 points),
 - International 1 category (14 points).

Comprehensive Assessment of Scientific Units in Poland - evaluation criteria M2

M2: Scientific potential (scientific strength) (weight 15):

- **The authorisation to confer postdoctoral degree (habilitation)**
– 70 points for each entitlement (one scientific discipline),
- **The authorisation to confer doctoral degree**
– 30 points for each entitlement (one scientific discipline),
- **Habilitation degree obtained by an employee** of a research unit or
obtained in a scientific unit by a person outside the unit – 7 points,
- **PhD degree obtained by an employee** of a research unit or obtained
in a scientific unit by a person outside the unit – 2 points,
- **The professional activities of scientific staff**, e.g. memberships in
international scientific organizations and on journal editorial boards, and the
mobility of researchers: min. 3 months stay in foreign university noted in
Academic Ranking of World Universities – 5 points.

Comprehensive Assessment of Scientific Units in Poland - evaluation criteria M3

M3: The practical (material) effects of scientific (weight 5):

- **Financial resources gained as a result of implemented projects**
 - 1 point for 100 000 PLN (around EUR 23490),
- The funds earned from the **commercialization of the results of R&D activity**:
 - a. New technologies, methods, materials, know-how, software, products, systems and services **developed to entities other** than the assessed research unit – 1 point for 50 000 PLN (around EUR 11745),
 - b. The funds earned from the **commercialization of the results** of R&D, or the know-how associated with these results – 1 point for 50 000 PLN (around EUR 11745),
 - c. **Expertise and scientific studies** designed to entities other than the assessed research unit – 1 point for 50 000 PLN (around EUR 11745).

Comprehensive Assessment of Scientific Units in Poland - evaluation criteria M4

M4: Other effects of scientific and artistic activity (weight 15):

➤ Activities for the development of science on an **international scale** and the **increase in innovation on the national scale** (0-50 points):

- a) publications, monographs and scientific databases and artistic activities of particular importance for the development of science,
- b) documented applications of the results of scientific research and development of high public interest,

➤ Achievements indicating **high international position of the unit** (0-50):

- a) participation in international projects** involving R&D,
- b) organization or co-organization international of conferences.**

Strengths of the Polish Comprehensive Assessment of Scientific Units

- There is **one system** for all types of research institutions.
- The system provides a mechanism for keeping the **balance** between different disciplines and groups of sciences (the weight of criteria).
- This is a **meritocratic solution**, which means that the financial allocation is based on the scientific units' performance.
- The model is **publication based**, which generates a more **transparent** evaluation and which is more reliable (and less costly) than evaluation based on the peer review.
- The system encourages building explicit **research strategies** of scientific units.
- The system enables to **measure the productivity level and link** it with the funding level.
- The system enables to **gather information** about the performance and the activities of scientific units on the national level.



Weaknesses of the Polish Comprehensive Assessment of Scientific Units

- Ignoring the publishing patterns and the differences between various disciplines.
- The **mechanical system** based on the number of publications may lead to the **diminishment of outstanding** contribution value.
- The system may **discourage innovative research** and **encourage publishing many articles** with similar findings.
- The system does not promote conducting **long-term research**.
- The system brings results in a **lack of a proper database** that would cover all publications and other assessed elements.
- There is **no correlation** between the teaching and the research, which brings about lower priority of teaching.
- Favoring publications in the congress languages (especially English) which undermines the evaluation of publications in the humanities.



Performance or excellence?

- The performance of the institutions of higher education is constituted by various research outcomes, like: publications, research projects, organized conferences, workshops or seminars, and others.
- Contrary to the concept of performance, the concept of “excellence in research” indicates that only some parts of the performance are desirable.
- Is it not the excellence that should be rewarded (despite remaining difficulties in defining and quantifying such “excellence”)?

Some reform proposals for enhancement of Polish research

- Change of attitudes of researchers (how scientists work, what they think about their scientific research)
- Increase mobility of researchers
- Government's support for researchers' internationalization
- Developing high level international experts (direction of substantial public funding)
 - Effective search and promotion of original research with high cognitive and application value is not possible without competent experts with internationally recognized achievements

Detailing the Impact of Research in Poland (1)

- Grants: especially foreign research projects (eg. EU funded projects)
- Participation in research projects, especially international research projects
- Practical work for business sector
- Expertise for recognized external organizations such as the European Commission
- Carrying out of reviews
- Supervision of PhD students
- Membership in scientific journals editorial boards

Detailing the Impact of Research in Poland (2)

- Participation in conferences, especially international ones, also non-academic conferences
- Invitation as key note speaker to international scientific and non-academic conferences
- Study trips, fellowships at foreign institutions, teaching trips, academic training
- Participation in projects carried out at external institutions
- Publications – articles published at renown foreign journals with high Impact Factor; books or book chapters especially published by recognized publishers such as Springer or Routledge; conference papers; working papers

Detailing the Impact of Research in Poland (3)

- H-index (publish or Perish, PoP)
- Number of years since the last indexed publication (PoP)
- Citation number (PoP)
- Number of points obtained according to the Polish Ministry of Higher Education's journal ranking

New criteria:

- Updated profile on the Warsaw School of Economic's website
- Running own blog, FB page or website
- Having a profile and posting publications at Academia.com, Research Gate, SSRN, Mendeley etc.

Side effect: lack of measurement of teaching quality - the academic teachers in Poland do not have incentive to improve their teaching skills which results in poor quality of education

Mentoring

- Working with **supervisor** (and assistant supervisor)
- **Doctoral seminars** in chosen specialization field by accomplished specialist in a given area (WSE - finance, management, international economics)
- **Mentoring training for future mentors** in Western European universities
- Trainings/competitions related with mentoring that enable researchers to **meet and consult their research projects with renowned researchers** from their field (Polish Academy of Sciences, Foundation for Polish Science or individual universities/schools)

Mentoring cont.

Foundation for Polish Science : trainings on mentoring supporting individual development of a researcher

- Mentoring – basic concepts
- Personal competencies of a mentor
- Tools applied in mentoring – coaching + practical training
- Learning to inspire mentees
- Applying motivation mechanisms in mentoring
- Communication and influence in mentoring

Identifying Subject Specific Core Competencies

Advanced Analytics – Big Data

Advanced Optimization Methods, Algebra and Mathematical Analysis, Basic and Advanced Programming in SAS with Statistics, Big Data, Cloud Computing, Data Mining, Event History Analysis With SAS, Logistic Regression with SAS.

Economics

Advanced International Economics, Applied Econometrics, Advanced Mathematical Analysis, Econometrics of Panel Data, Mathematical economics and dynamic optimization, Probability Theory and Stochastic Processes, Mathematical Economics and Optimal Control Theory.

Identifying Subject Specific Core Competencies

Quantitative methods in economics and information systems

Advanced Optimization Methods, Management Information Systems, Mathematical Statistics, Probability Theory and Stochastic Processes, Software Engineering, Statistical Methods, Time Series Econometrics.

Generic Core Competencies

- **Excellent English**
- **Being present on internet:** Research Gate, FB, Mendeley, Twitter, etc.
- **Reviewing and synthesizing research literature –** Mendeley tool
- **Applying for Research Grants**
- **Getting published in quality journals**
- **Soft skills –** communication skills, leadership skills, project management

Thank you!

amccal@sgh.waw.pl

arkadiusz.kowalski@sgh.waw.pl