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Science and Value; Thoughts about visibility and excellence in V4 universities

University Rankings Forum Hungary:
Empower your research for global visibility
ELSEVIER – Óbuda University

21th October 2021 11:40-12:00
Óbuda University Budapest, Bécsi út 96/b, Room F09
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Visegrád partner universities
- Slovak University Of Technology In Bratislava
- Wroclaw University of Science and Technology
- Tomas Bata University in Zlin
- Technical University of Košice
- Warsaw University of Technology
- Poznan University of Technology
- University of Pécs
The story line: science - value - visibility

Science - Let’s assume we do research and we have scientific results, what next?

Value - Where to publish? Complex and Contradictory standard (value) and incentive structure. Who’s value it is, and which one to be followed?

Excellence - how to measure?

Visibility – and visualisation

Stakeholders - Who wants us to do and what exactly? Ministry, students families and other stakeholders …

Iterative method - What kind of iterative method to be used for the control and continuous improvement of our processes and results?
Content – key words

Measured or Communicated? vs. Measured AND Communicated?

- invisibility-visibility
- “visibility threshold”
- to get recognition (position or improvement?)
- validity of the ranking systems in CEE
- discriminative power
- “league tables”
- “magnifying glass”
What do we really want? Possible goals

More value for money! Sure!
More good students? More international students?
Researchers, lecturers, good researchers & lecturers? International?
Funds, money, more funds and more money? Income, more income?
More funds, less financial commitments of the state?

More innovation? More impact on the society? Universities as „innovation engines“ of the society?
„Corporate Social Responsibility“ (Sustainability)
Social policy goals – keeping young generation in their home country?
Different value systems – Which should we follow? I.

The structure of the Hungarian Academy of Sciences
11 sections and 44 committees

I. Section of Linguistics and Literary Scholarship
II. Section of Philosophy and Historical Sciences
III. Section of Mathematics
IV. Section of Agricultural Sciences
V. Section of Medical Sciences
VI. Section of Engineering Sciences
VII. Section of Chemical Sciences
VIII. Section of Biological Sciences
IX. Section of Economics and Law - including sociology, demography and political sciences
X. Section of Earth Sciences
XI. Section of Physical Sciences

Committees VI. Section of Engineering Sciences:
Committee on Architecture
Committee on Automation and Computer Science
Committee on Electrical Engineering
Committee on Electronic Devices and Technologies
Committee on Energetics
Committee on Fibre Technology
Committee on Hydrodynamics and Thermal Energy Engineering
Committee on Information Science
Committee on Materials Science and Technology
Committee on Mechanical Structures
Committee on Metallurgy
Committee on Telecommunication Systems
Committee on the History and Theory of Architecture
Committee on Theoretical and Applied Mechanics
Committee on Town Planning
Committee on Transport Engineering
Committee on Water Management
Complex Committee on Acoustics

ÓU has colleagues with membership in the red sections
Different value systems – Which should we follow? II.

The system of research outcome categorization of the Hungarian Academy of Sciences

Each Section specifies their own scientific requirements which vary greatly dept. to dept.

As for publication (research) Sections and often committees within the Sections set up their own categorization of the Journals from ‘A’ to ’D’

- international A-D
- national A-D

They set their own value category from ’A’ to ’D’ and they categorize scientific journals both section and committee level.

The methodology behind this categorization is not known.
Different value systems – Which should we follow? III.

Issues:

**Double (multi) value system in place**
- researchers have to comply with the national system if they want to proceed with their professional career
- e.g. *European Journal of Health Economics* is category ‘C’ according to the Section IX. – not the same level as the international recognition on the other hand *Közgazdasági Szemle (Economic Review)* is category ‘A’ – however, it is not Scimago ranked

**Incompatible and confusing value & incentive system**
Difficult to navigate. Which value should be followed? How could research be internationally recognized? What requirements should we follow? National vs. International? How to improve international visibility? How could our ranking position be improved?
Visibility issue: V4 universities

In the V4 countries there are around 400-600 higher education institutions

Fully visible (clearly positioned):
have well-defined rank – for THE it is up to 200

Visible (roughly positioned):
rank is given as a range – for THE it is between 200-1200 (range size is different)

Ranked universities:

Quasi visible („the rest”) for THE 1200+

Unvisible – not even ranked

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<th>Country</th>
<th>Ranked</th>
<th>Times Higher Education</th>
<th>QS</th>
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## V4 universities

### THE & QS

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Discriminative power

Discriminative power is a measure of how well a classification algorithm discriminates things (how good it is at distinguishing between and classifying them).
Times Higher Education World University Rankings 2022

1  University of Oxford
=2  California Institute of Technology
=2  Harvard University
 4  Stanford University
=5  University of Cambridge
=5  Massachusetts Institute of Technology
 7  Princeton University
 8  University of California, Berkeley
 9  Yale University
10  The University of Chicago
THE World University Rankings 2022

1 - 200 one by one

201-250 / 50
251-300
301-350
351-400

401-500 /100
501-600

601-800 /200
801-1000
1001-1200

1200+ / the rest
Discriminative power of ranks (THE)

1-200 / 1
201-400 / 50
401-600 / 100
601-1000 / 200
1001-?? /???
Validity of the THE measure; Discriminative power

Let’s assume you were in the ranking position of 1600 in 2020.

You reached a position of 1202 in 2021.
Difference: 398 positions

Problems:
- you are still in the 1201+ category (your improvement is not visible)
- in the real world you do not know your real position and do not know how far you are from the „visibility threshold” (position 1200 and above)
V4 under the 1201+ threshold

We assume the 1201+ is not a homogeneous category, huge heterogeneity is projected.

Some universities might be close enough to this 1201 visibility-threshold and some might be far in terms of time and resources needed to improve.

Organisational culture & the level of university excellence are likely to be very different among V4 invisible universities.

Different governance and management tools, indicators, motivation … etc. is possibly needed in different excellence sub-groups in V4. We need to differentiate.

We need a measuring tool with good validity, reproducibility, and discriminative power in V4.
Magnifying glass of university excellence

Charles University—Brno University of Technology—University of Chemistry and Technology, Prague—Czech University of Life Sciences Prague (CULS)—Czech Technical University in Prague—University of Economics, Prague—University of Hradec Králové—Jan Evangelista Purkyně University—Mendel University in Brno—University of Ostrava—University of Pardubice—Technical University of Liberec—Tomas Bata University in Zlín—VSBEchnical University of Ostrava—University of West Bohemia—Budapest University of Technology and Economics—Corvinus University of Budapest—University of Miskolc—István University—Adam Mickiewicz University, Poznań—AGH University of Science and Technology—Cracow University of Technology—University of Gdańsk—Gdańsk University of Technology—Poznań University of Technology—UNIVERSITY GDANSK—University of Lodz—University of Wroclaw—Wroclaw University of Science and Technology (WRUST)—Technicka University of Kosice—University of Debrecen—University of Szeged—Medical University of Warsaw—University of Łódź—Lodz University of Technology—Nicolaus Copernicus University in Toruń—University of Silesia in Katowice—University of Technology—AGH University of Science and Technology—Warsaw University of Life Sciences—SGGW—Warsaw University of Technology—Warsaw University of Environmental and Life Sciences—Wroclaw University of Scienceand Technology—University of Wroclaw—Warsaw University of Life Sciences—SGGW—Wrocław University of Medical University of Warsaw—Adam Mickiewicz University—Gdansk University of Technology—Medical University of Silesia—University of Warsaw—University of Warsaw—Adam Mickiewicz University—Gdansk University of Technology—Medical University of Silesia
Learning by doing??
Crucial things to thrive

Ground control

Experience - (CPD - Continuous Professional Development)

Simulation

Colleagues
Investigate some parts of the university excellence in V4 region

Main goals:
- literature review (transferability)
- stakeholders’ survey – preferences, and the value of a good university
- providers’ survey – organizational culture of the V4 universities
Conclusion / Suggestion

Ranking requirements (message) are very complex, difficult to interpret and apply.

Formalisation and institutionalisation
legal enforcement of ranking, organisational embedding, human resources capacity

Standardisation
Guidelines, priorities, economic evaluation
Coherent and transparent value and incentive structure is needed

Execution
application, fee etc., professionalisation (ranking expert)

Further Professionalisation
shortage of trained professionals
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