Publication Strategies and Ranking

Lunch seminar for AoA Transport

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David Minguillo Brehaut
Per-Eric Thörnström
University rankings

- General rankings of whole universities
- Subject Rankings
- Faculty Rankings
- "Special rankings":
  - Employability
  - Business incubators
  - Innovation
  - Sustainability

Who are the rankers?
- Companies active within "Higher Education"
- University coupled entities

There are around 30 different rankings today.
Which lists to follow?

- So far - the three "big" lists, which are also the oldest:
  - ARWU – Shanghai (Academic Ranking of World Universities)
  - QS – World University Rankings
  - THE – World University Rankings

- In addition CWTS (Leiden) – several lists, pure bibliometrics

- Subject rankings from the three big lists – QS most

- New Subject ranking (engineering) – by Shanghairanking

- Ranking report 2015 (in Swedish) covers most lists available
Chalmers 2011-2016

- 139, 4th in SWE
- 254, 7th in SWE
- 282, 7th in SWE
## What is the difference?

<table>
<thead>
<tr>
<th></th>
<th>ARWU</th>
<th>QS</th>
<th>THE</th>
<th>CWTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ranked universities</strong></td>
<td>500</td>
<td>936</td>
<td>980</td>
<td>750</td>
</tr>
<tr>
<td><strong>Size dependent</strong></td>
<td>(YES)</td>
<td>NO (YES)</td>
<td>NO (YES)</td>
<td>NO / YES</td>
</tr>
<tr>
<td><strong>Data reporting</strong></td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td><strong>No. of indicators</strong></td>
<td>6</td>
<td>6</td>
<td>13 (5)</td>
<td>5+5</td>
</tr>
<tr>
<td><strong>Bibliometry</strong></td>
<td>3 (60%)</td>
<td>1 (20%)</td>
<td>3 (38,5%)</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Data base</strong></td>
<td>WoS</td>
<td>Scopus</td>
<td>Scopus</td>
<td>WoS</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Nobel prizes 20%+10%</td>
<td>Surveys 40%+10%</td>
<td>Surveys 18%+15%</td>
<td>One list per indicator</td>
</tr>
<tr>
<td><strong>Score</strong></td>
<td>Proportion of the best</td>
<td>Proportion, excl. extremes</td>
<td>Proportion, excl. extremes</td>
<td>Absolute / Proportion, of total prod.</td>
</tr>
</tbody>
</table>
Indicators

• Crucial if they are depending on size of the university, or not.

• The scores of the indicators say more than the ranks in general, BUT
  – Changes in definitions
  – Changes in reporting (THE, QS)
  – Methodology changes (not always transparent)

• What kind of indicators?
  – Bibliometrics; publications, citations, subject normalized (or not), per academics, collaboration - int, ind, etc. Often not fractionalized.
  – Internationalisation; students and or faculty, co-publications
  – No. of students; levels, per faculty
  – Surveys to academics / employers
  – Doctoral education; exams, per masters/bachelor exams, per faulty
  – Income (research/teaching, from industry, per academics)
  – Prizes (Nobel, Fields medal, other)
What about surveys?

• Surveys are questionable. Who gets them? Who is answering?
  — Academic/Employers (QS) and Research/Education (THE+WoS)
  — Universities are invited to provide names for the QS surveys. We do so. This year, we will invite faculty of Chalmers to propose names.

• Two world-wide surveys have become three (QS, THE, WoS) (WoS now owned by Clarivate Analytic)

• Can it be a coincidence that researchers (around the world) do not think of Chalmers, asked to name the top 15/30 universities in their own field? I don’t think so.

• Chalmers gets ”votes” from all continents and in most subject areas, but quite few ”votes”.
• KTH has analyzed their ”votes” and found that they get most of them from their strong and visible areas e.g. ”Electrical and electronic engineering”
University rankings and Subject rankings

- Hard to rank an AoA - rankings are subject based.

- Which subjects, and which definitions is not standardized

- Subject rankings that can say something about Transport:
  - Engineering
  - Mechanical Engineering
  - Electrical engineering
  - Computer Science
  - Materials science/engineering

- The NTU (National Taiwan University) subject ranking gives both years values and the last years’ values for Bibliometrics. Good for analyses.
### QS Subject Rankings 2016

20-50% Bibliometric, 50-80% "Reputation", 100% Size indep.

<table>
<thead>
<tr>
<th>Subject</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture / Built Environment</td>
<td>-</td>
<td>-</td>
<td>51-100</td>
<td>51-100</td>
</tr>
<tr>
<td>Computer Science &amp; Info Systems</td>
<td>151-200</td>
<td>101-150</td>
<td>151-200</td>
<td>101-150</td>
</tr>
<tr>
<td>Engineering - Chemical</td>
<td>51-100</td>
<td>51-100</td>
<td>51-100</td>
<td>101-150</td>
</tr>
<tr>
<td>Engineering - Civil &amp; Structural</td>
<td>51-100</td>
<td>101-150</td>
<td>51-100</td>
<td>51-100</td>
</tr>
<tr>
<td>Engineering - Electrical</td>
<td>46</td>
<td>51-100</td>
<td>51-100</td>
<td>51-100</td>
</tr>
<tr>
<td>Engineering - Mechanical</td>
<td>43</td>
<td>51-100</td>
<td>51-100</td>
<td>101-150</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>301-350</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>101-150</td>
<td>51-100</td>
<td>101-150</td>
<td>101-150</td>
</tr>
<tr>
<td>Chemistry</td>
<td>101-150</td>
<td>101-150</td>
<td>101-150</td>
<td>101-150</td>
</tr>
<tr>
<td>Materials Science</td>
<td>51-100</td>
<td>101-150</td>
<td>51-100</td>
<td>101-150</td>
</tr>
<tr>
<td>Mathematics</td>
<td>151-200</td>
<td>151-200</td>
<td>51-100</td>
<td>151-200</td>
</tr>
<tr>
<td>Physics &amp; Astronomy</td>
<td>101-150</td>
<td>101-150</td>
<td>101-150</td>
<td>151-200</td>
</tr>
<tr>
<td>Statistics &amp; Operational Research</td>
<td>101-150</td>
<td>51-100</td>
<td>151-200</td>
<td>151-200</td>
</tr>
</tbody>
</table>
# Shanghairanking Subject Rankings 2016

90-100% Bibliometric, 30% Size independent

<table>
<thead>
<tr>
<th>Subject Category</th>
<th>Chalmers</th>
<th>KTH</th>
<th>DTU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Eng.</td>
<td>51-75</td>
<td>51-75</td>
<td>12</td>
</tr>
<tr>
<td>Civil Eng.</td>
<td>76-100</td>
<td>51-75</td>
<td>2</td>
</tr>
<tr>
<td>Electrical Eng.</td>
<td>76-100</td>
<td>48</td>
<td>76-100</td>
</tr>
<tr>
<td>Energy Eng.</td>
<td>51-75</td>
<td>49</td>
<td>2</td>
</tr>
<tr>
<td>Environmental Eng.</td>
<td>101-150</td>
<td>151-200</td>
<td>16</td>
</tr>
<tr>
<td>Materials Eng.</td>
<td>101-150</td>
<td>51-75</td>
<td>34</td>
</tr>
<tr>
<td>Mechanical Eng.</td>
<td>51-75</td>
<td>51-75</td>
<td>35</td>
</tr>
</tbody>
</table>
What are we told by the ranking results?

- Chalmers is not a big university. 386th in no of publications (CWTS - WoS)
- The impact of our publications is not far above the average, but increasing.
- Bibliometric strength does not improve much relative other universities, when Scopus is used as data base.
- Top 1% cited publications does not favour us - 435th in CWTS
- BUT we have three Highly cited authors - 197th in ARWU
- AND we are good at publishing together with industry 5th in CWTS N.B. 2015
- AND to get funding from industry 106th in QS
- Int. collaboration is OK, 162nd in THE but 9th in Sweden
- Academic reputation is stronger than our publication record, but not strong.
- We are gaining in internationalisation of faculty and students.
- We are not top 50 in any subject (QS, SR)
- It is possible to improve bibliometrics significantly – look at DTU, KTH, Aalborg – but how do they make it?
What can be done?

First of all - quality is king
It is no use to do anything if we are not aiming to do world-class teaching, excellent research and work with utilization in an efficient way.

• Every recruitment must be regarded as a key recruitment
• Time for faculty to do research, to teach and to be innovative
• Improve internationalisation – collaborate deeply with the best.
• Make Chalmers more visible – use the logo and the name!
  — Most of the things we do must be part of creating a strong ”brand”
  — We market Chalmers in every recruitment, in appointing advisory boards, steering groups, assessors, in electing honorary doctors, etc.
  — Active in and use our networks (N5T, IDEA League, CESAER, Mol. Frontiers, Res. links, Unitech, etc.)
  — Guest researchers/teachers and sabbaticals in/out. A great possibility!
  — Visit and arrange prestigious conferences – you are “Chalmers”
  — Make our achievements known internationally
• Improve bibliometry – use publication strategies!
Why publication strategies?

It is about visibility and impact
- within and outside of your research area

- Better chances to new and fruitful collaborations
- Better chances to get external funding
- Better CV
- Better bibliometrics for individuals, groups, departments, AoA, Chalmers
- Positive for internal funding allocation based on departments’ performance
- Significant impact on subject rankings and general rankings

Can start a spiral of success!
What is important to keep in mind for a publication to appear in Scopus and Web of Science?

**Scientometrics is not able tell if a paper is good or not**
- focus on extrinsic factors (authors, institutions, journals, fields) associated to high performance.
- NO attention to a paper’s intellectual contribution (novelty, quality).

- **Web of Science (WoS) vs. Scopus**
  - >13,000 journals (High-quality) vs. >20,00 journals (Wide coverage).
  - WoS is still the most authoritative source but Scopus is increasingly used as main data sources by peers, universities, league tables, research funders, councils.

- **First, choose a few relevant journals or conference proceedings indexed in WoS/Scopus** (aims, scope, topics, published papers, impact).
  - It reflects the research culture and group leaders expectations.
Factors to keep in mind

• Citation behavior is a complex task (positive/negatives references)
  — Predictors are based on external attributes
  — Predictors vary across scientific fields

• Most common factors that contribute to citation impact:
  — journal prestige (peer-review and degree of internationalisation),
  — references (citing high-impact papers - Top1%),
  — individual and international teamwork (high number of (international) institutions),
  — (co-)authors (scientific and social visibility) and institutional affiliation (prestigious universities)
What to consider when choosing a journal: Journal prestige and quality

• Journal prestige is the most effective determinant of future citation count in most subject domains (peer-reviewed process: quality scrutiny and improvement).

• A journal’s quality/visibility is basically measured by its citation rate and they are ranked by indicators such as:
  — JIF, 5Year IF, Eigenfactor, MNJS (Jf) – (WoS); SNIP, SJR – (Scopus).

• Mean Normalized Journal Score (MNJS or SNIP)
  — Is widely used at Chalmers and is known as Jf. It ranks journals independent of their subject fields as the citation rates are normalized for difference across subject fields, publication type and publication year.
  — A value > 1.0 means that publications published in a journal receive citations above the average of the field and publication year.
Impact of Journals quality (Jf) on Chalmers publications

• Only 52% of Chalmers publications (2009-13) get into journals ranked above the world average (Top 50% most frequently cited).
  — These publications receive almost **75% of all our citations** (10 vs 4 citations per pub.)
  — The normalized impact per publication **(Cf) score is 1.5** (vs. 0.65)
  — The percent of our **Top 10%** most frequently cited pub. is **22%** (vs. 6%) and only 4% of our publications remain uncited (vs. 12%).

• Journal selection process should take into account:
  — If the journal is good enough to be indexed in international databases (WoS/Scopus)
  — If the journal is at the upper-level (among the top 50% most cited)?
  — If the journal is a highly cited one (Top 25% (Q1) or top 10% most cited)?
Journal rankings: Tools

- Journal Citation Reports (JCR) – WoS
- SCImago Journal Ranking (SJR) – Scopus
- Journal Metrics – Scopus
- CWTS Journal Indicators – Scopus
- Journal finder (Elsevier)
Collaboration and international teamwork

• International collaboration is also one of the most effective determinant of future citation count in most subject domains.

• Individual and international teamwork (high number of (international) institutions).

• (co-)authors (scientific and social impact) and institutional affiliation (prestigious universities).
Impact of the International collaboration on Chalmers publications

- According to SciVal only 51% of Chalmers publications (2011-15) are internationally co-published.
  - These publications receive 62% of all our citations (9 vs 6 citations per pub.)
  - The normalized impact per publication (Cf) score is 1.8 (vs.1.2)
  - Only 5 international institutions are among Chalmers Top 15 collaborating institutions

Quadrant for KTH

Quadrant for Chalmers
KTH & CTH (same scale)
Plan for gaining visibility and impact

• High-impact research is a common goal for researchers.
  — Authors should strive to maximize their impact

• A publication strategy
  — plan to effectively utilize the scarce resources available to tackle the increasingly competition and higher expectations.
  — quality, research excellence and outstanding researcher are key to secure policy makers’ support.

• Strategy can have the following aims:
  — Performance goals establishment (career stage, performance, individual and institutional expectations)
  — Publication output visible in WoS/Scopus (quality pay-off)
  — Journal rankings – highly cited as possible
  — Collaboration network – skills, visibility and knowledge
  — Systematically self-assessment and setting new strategic goals
... last but not least...

- Don’t be shy!
- Use a distinct and consistent name and get your affiliation right.
- Unique, digital identifier: ResearchID (WoS), AuthorID (Scopus), or ORCID (https://orcid.chalmers.se).
- Collaborate more, but choose co-operating groups/universities with care. Partners who add value to your research.
- Write journal articles! (Also!) Scopus/WoS
- Choose the right journals for visibility. Use Jf-values (MNCS, SNIP). Journals subject classifications are also important.
- CPL (Research) register all in WoS and Scopus – but register the rest
- Promote your research – community, social media (ResearchGate, Mendeley, Pumblons). Use DOI number for the publication identification.
- Read the publication guide, ”Be visible”, provided by Chalmers Library: http://www.lib.chalmers.se/publicering/att-publicera/strategisk-publicering/
- Take your time to get familiar with SciVal and attend the workshop on January the 16th: http://www.scival.com/home