Careers, quality of research and why you need to understand the system

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Research fronts: Three versions

![Core](image)

HARD Paradigmatic

![Core](image)

Core

SOFT Non-paradigmatic

![Core](image)
Research fronts

Core
Research programmes and knowledge fronts

Competition

Handbooks
Readers
Wikipedia

Results:

Infrastructure
Research funding
Universities
Research Institutes

Suggested reading: Imre Lakatos
Which Scientific Community?

- Local Community
- International Community
Local Community
International Community
Peer review – concepts

- Classical peer review
  E.g. Journals
- Modified peer review
  E.g. Councils
- Program Officer model
- Performance indicators – reward
  E.g. Bibliometrics
Classical peer review

Journal Editor

Styles of research and research subjects
Modified peer review

Styles of research and research subjects

Evaluation Committee
Council model

Ex ante evaluation

Core

Handbooks
Textbooks
Wikipedia

Infrastructure
Financing
Universities
Research Institutes

Track Record is favoured

Cognitive Bias
Conflicts of Interest
Program officer model

Core

Handbooks
Textbooks
Wikipedia

Infrastructure
Financing
Universities
Research Institutes

Reputation
+ network
Reward model

- Use of publication databases
- Rewards for the best performances (during the last period)
- Grants are given for continuation
- Can be combined with many different models
Reward model

Core

Handbooks
Textbooks
Wikipedia

Infrastructure
Financing
Universities
Research Institutes

Most recent publications
Reward-model

Bibliometrics

Styles of research and research subjects
Criticism to peer review

- Low reliability
- Low robustness (selection of reviewers)
- High cost,
- Recruitment of reviewers (pragmatism)
- Nepotism
- Sexism
- Cognitive bias
Consequences of peer rev.

- In Sweden: proposal hysteria
- Tend to publish mainstream follow-up studies
- Conservatism
- Manage the core is more important than changing the front
- Hindrance of renewal
Cognitive bias in panels

Blue: nodes = rejected;
Red nodes = granted;
green = panel members;
M = male panel member/applicant;
F = female panel member/applicant
Size = performance level 2007–2013

ERC Panel LS1
Molecular Biology etc.
Peers: the best or the mediocre?

Who selects the panel members?
Are peers excellent per definition?

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<th>NCSj</th>
<th>NJCS</th>
<th>NCSf</th>
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Eloranta
Evans
Janschek
Jensen
Utterback
van Brussel
Westkamper
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### Foreign members?

<table>
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<th>Type of peer</th>
<th>Performance</th>
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<td>&quot;International&quot;</td>
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<td>Swedish</td>
<td>1.18</td>
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<tr>
<td>Others</td>
<td>1.13</td>
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<td><strong>Total</strong></td>
<td><strong>1.13</strong></td>
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Reading: Sandström: Vetting the panel members (2015)  
www.forskningspolitik.se
ERC panels

INTERVIEWS SUGGEST:

- LACK OF CLEAR CRITERIA
- HIGH PANELIST WORKLOAD => STEREOTYPING
- DROPPING CRITERIA (INDEPENDENCE)
- DIFFERENT BEHAVIOR (OVERSELLING, SELF-PROMOTING) AND GENDERED APPRECIATION BY PANELISTS

Reading: van den Besselaar et al., Scientometrics (2017)
Panel work is pragmatic

- First, they do not distinguish between past performance and the proposal = same

- Secondly, they focus on rejecting the applications by searching for weak points

- They do not search for ground-breaking research

Take care of your independence..

- Relation PhD and supervisor(s)

Start to publish **without** your supervisor asap!
Start your own research lines or a new research programme

Do councils make a difference?

Figur 2. Top₁ och topp₁₀ för Sveriges och jämförelseländernas publikationer

- Schweiz
- Danmark
- Nederländerna
- Sverige
Change in FracPP10 by change in HERD
Residuals per country

Reading: Sandström & vd Besselaar; Journal of Informetrics (2018)
Performance vs. Institutional funding

![Graph showing performance vs. institutional funding for various countries including Netherlands, Spain, Belgium, Switzerland, Germany, France, New Zealand, Norway, Australia, Sweden, Ireland, Canada, Austria, Finland, UK, and Sweden. The graph has a linear trend line with an R^2 value of 0.10.](image)
Evaluation system matters!

The graph illustrates the correlation between evaluation systems and certain indicators, with data points from various countries such as the Netherlands, Switzerland, Denmark, Germany, France, New Zealand, Spain, Norway, Belgium, Canada, Ireland, Australia, Sweden, Austria, Israel, Finland, and UK. The graph shows two distinct lines with R² values of 0.27 and 0.36, indicating the strength of the relationship. The legend includes symbols for no NRES, NRES, and NRES with funding effects.
Holds also at the national level

- Swedish universities behaves in the same way,
- More funding from external resources leads to lower output
Output vs external (project) funding in Sweden

Quality Of Publications (citations)

Project funding (third party funded)

\[ y = -1.3519x + 1.7386 \]
\[ R^2 = 0.7525 \]
Quantity and/or Quality?

- Impact ceiling
- Diminishing returns of productivity
- Constant returns of productivity
- Increasing returns of productivity
- Small is beautiful
Quantity matters!

Read: Sandström & vdBesselaar, PLoS ONE (2016)
Thanks for listening!

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