It goes without saying that promoting and maintaining research integrity is one of the core epistemic responsibilities of universities.
The next two slides will outline the ideas from which my presentation departs.

Content

- Why is it important?
- What can universities do?
- How will our project help?
For most people when thinking about research integrity the first association is with spectacular cases of research misconduct

Diederik Stapel – Mart Bax – Yoshitaka Fujii – Eric Poehlman

Don Poldermans — Milena Pankova - Yoshiki Sasai - Paolo Macchiarini

Please note that this is a non-random sample of the convicted culprits – strongly biased towards the Netherlands

See leaderboard of retractions: http://retractionwatch.com/the-retraction-watch-leaderboard/
Top of the ice berg

1. Not all research misconduct will be detected

2. On the aggregate level sloppy science may be a much larger problem
Research misconduct is typically thought to concern one of the three ‘deadly sins’ against research integrity: fabrication, falsification or plagiarism.

The fabrication and falsification (leaving out and changing data points) of data is clearly wrong.

Plagiarism differs from fabrication and falsification in the sense that it typically does not compromise the validity of knowledge, but it undermines the trust in science and in scientists.

Most forms of plagiarism and especially self-plagiarism are a QRP rather than RM.
How often do RM and QRP occur?

average of 21 surveys

- Self-reported **FF** at least once in last 3 yrs \( \rightarrow 2\% \)
- Self-reported **QRP** at least once in last 3 yrs \( \rightarrow 34\% \)

These figures come from the highly cited meta-analysis of Daniele Fanelli.

A recent survey shows higher numbers for research misbehavior in economics (4% and 94%) \( \rightarrow \) more honest reporting and/or more misbehavior? – My economic friends have no consensus on that.

Self-reported \( \rightarrow \) likely underestimation of true prevalences.

Difficult to translate to % papers or research with both categories of misconduct

Self report of fabrication and falsification implies intention to deceive.

Self report of QRP concern uncertain intention to deceive.


The top 5 illustrates how important citations became – they are mentioned twice – citations are the ‘air miles’ or frequent flyer points of science.

Bouter et al - Ranking major and minor research misbehaviors: results from a survey among participants of four World Conferences on Research Integrity. BMC Research Integrity and Peer Review (in press)
# Top 5 – Impact on Truth

<table>
<thead>
<tr>
<th>rank</th>
<th>item</th>
<th>score</th>
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<tbody>
<tr>
<td>1</td>
<td>Fabricate data</td>
<td>4.6</td>
</tr>
<tr>
<td>2</td>
<td>Selectively delete data, modify data or add fabricated data after performing initial data-analyses</td>
<td>4.4</td>
</tr>
<tr>
<td>3</td>
<td>Modify the results or conclusions of a study due to pressure of a sponsor</td>
<td>4.4</td>
</tr>
<tr>
<td>4</td>
<td>Choose a clearly inadequate research design or using evidently unsuitable measurement instruments</td>
<td>4.2</td>
</tr>
<tr>
<td>5</td>
<td>Conceal results that contradict your earlier findings or convictions</td>
<td>4.0</td>
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</table>
These are all items universities can and should do something about!

<table>
<thead>
<tr>
<th>rank</th>
<th>item</th>
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<tbody>
<tr>
<td>1</td>
<td>Insufficiently supervise or mentor junior coworkers</td>
<td>12.6</td>
</tr>
<tr>
<td>2</td>
<td>Insufficiently report study flaws and limitations</td>
<td>12.3</td>
</tr>
<tr>
<td>3</td>
<td>Keep inadequate notes of the research process</td>
<td>12.2</td>
</tr>
<tr>
<td>4</td>
<td>Turn a blind eye to putative breaches of research integrity by others</td>
<td>12.1</td>
</tr>
<tr>
<td>5</td>
<td>Ignore basic principles of quality assurance</td>
<td>12.0</td>
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</table>
Please note that F+F are not in the top 5 freq X truth scores – in fact they are in the middle range of the list of 60 items (high impact – low frequency)
In fact we know very little about the determinants of QRS and RM.

This slide just summarizes some plausible ideas.

It seems likely that determinants from these three categories interact in a synergistic way: e.g. high publication pressure will do most damage when mentoring is insufficient in scientists with weak moral attitudes.

We urgently need research to provide the evidence-base for effective interventions.
What can universities do?

Promote RCR and prevent research misbehavior by

- Being clear about what is expected – values/virtues and norms
- Having adequate procedures for handling allegations
- Remove perverse incentives in reward system
- Offer good RCR education for staff and students
- Promote open discussion about dilemmas scientist face

Codes of conduct are typically aspirational and focus on values and virtues

Hardly anyone reads them and they are difficult to disagree with and also quite vague about dos and don’ts

We need clear guidance and dynamic Standard Operating Procedures

And a good quality system to monitor whether we live up to our own standards
How will our project help?

Academic Research Culture in Amsterdam

study among and for academic community of
Web-based survey

- All active researchers in 4 institutions
- Differences between academic ranks and disciplinary fields
- Most salient aspects of research culture → SORC
- Perceived publication pressure → PPQ
- Prevalence and impact of 60 research misbehaviors
- Reports for internal discussion – identity protected
Focus group interviews

- 26 focus groups of 8 participants
- Differences of academic ranks and disciplinary fields
- Perceived barriers to RCR
- Views on preventability of research misbehaviors
- Ideas on effective solutions
- Inspired by survey results and inspiring pilot interventions
Pilot interventions

- Moral case deliberation in research groups
  - Bi-monthly discussions on actual RI dilemmas
  - At least 1 per disciplinary field
- Training for novice mentors of PhD students
  - Interactive and flexible
  - Intervision, supervision, course work, skills training
Conclusions

- **Sloppy science** is a larger evil than research misconduct
- **Academic communities** should and can promote RCR and prevention of research misbehavior a lot better
- There is much we don’t know and there is **no magic bullet**
- **Multiple stakeholders** must take action, including funding agencies, funders and scientific associations
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