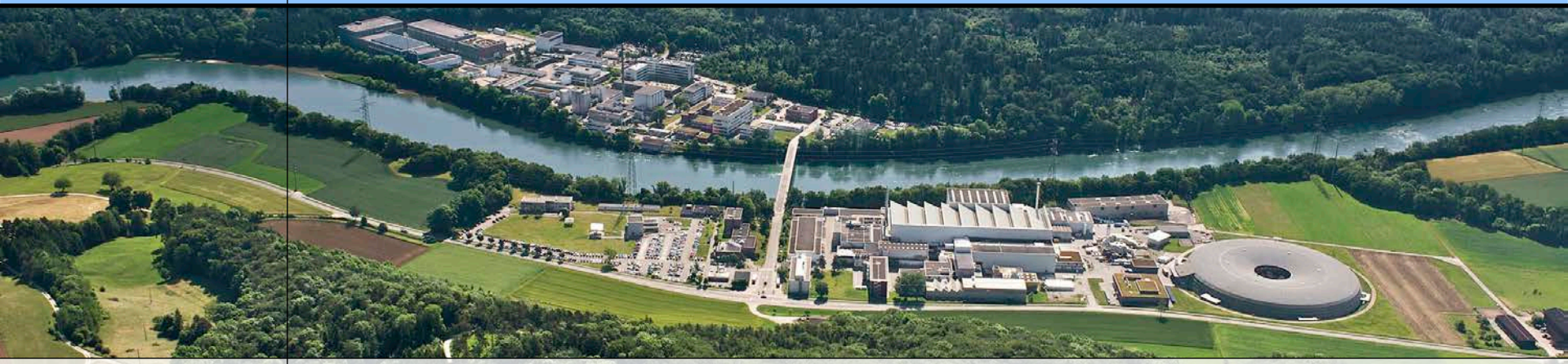
PAUL SCHERRER INSTITUT

PSI



Wir schaffen Wissen – heute für morgen

Research Integrity , 2014

Revised Guidelines

Louis Tiefenauer, PhD, MAS AE, PSI

Tuesday June 5, 2014, 11.00 – 12.00

On being a scientist

Why you are scientist ?
What you are doing? (answer next slide)
How you do science?

Research Integrity (part of science ethics)

- *What shall we do?* (research topics)
- *Principles: how you should conduct* (normative)
- Theories, responsibility, codices, history (e.g. atomic bomb), meta-science, etc., merit-rating (bibliography, other criteria, scientific career)

Avoid damage (respect rules): to persons, animals & environment
Create benefits: for the society (health, services, food, energy)
Be fair: distribution of merits (authorship, reviewing, plagiarism)
Respect autonomy: human experiments, freedom of research, grants

Research definition

(goals and how)

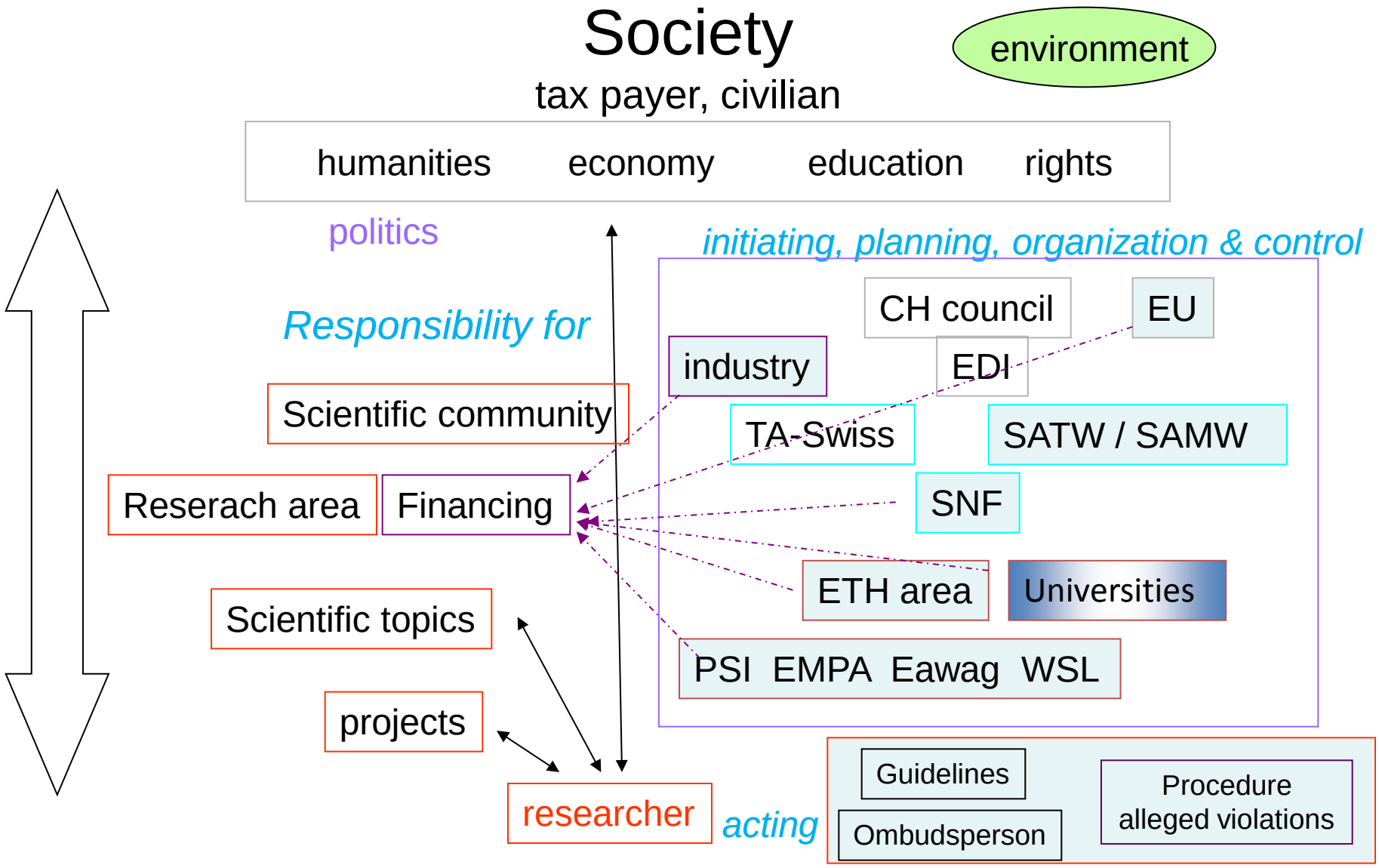
Research can be defined as search for knowledge, or as any *systematic investigation*, to establish *novel facts*, solve new or existing *problems*, prove *new ideas*, or develop *new theories*, usually using a scientific method. The primary purpose for basic research (as opposed to applied research) is discovering, interpreting, and the development of methods and systems for the advancement of human knowledge on a wide variety of scientific* matters of our world and the universe.

(Wikipedia)

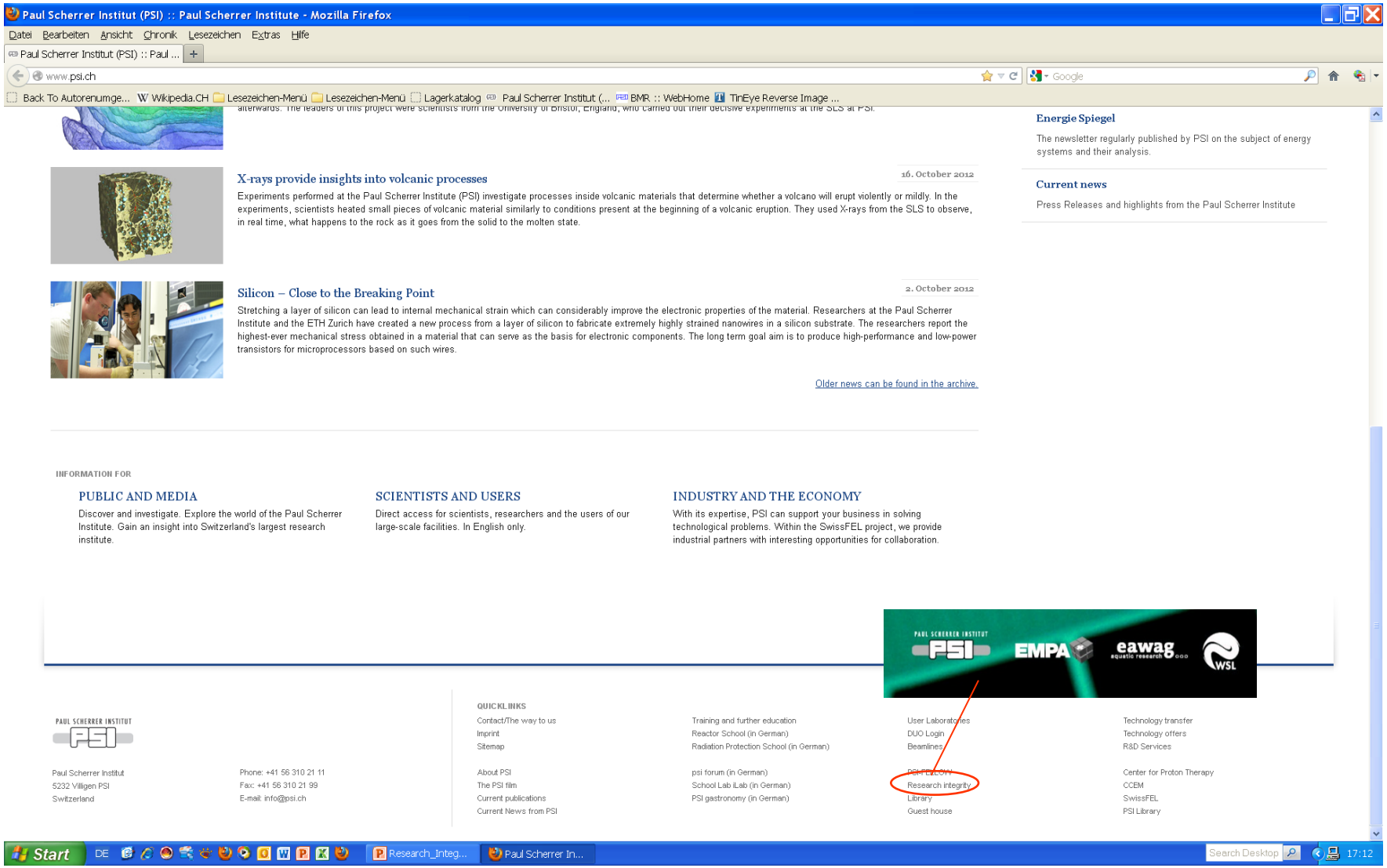
You are creating options for the future !

* Criteria of science: *commonly* accepted and accessible, independent, revisable

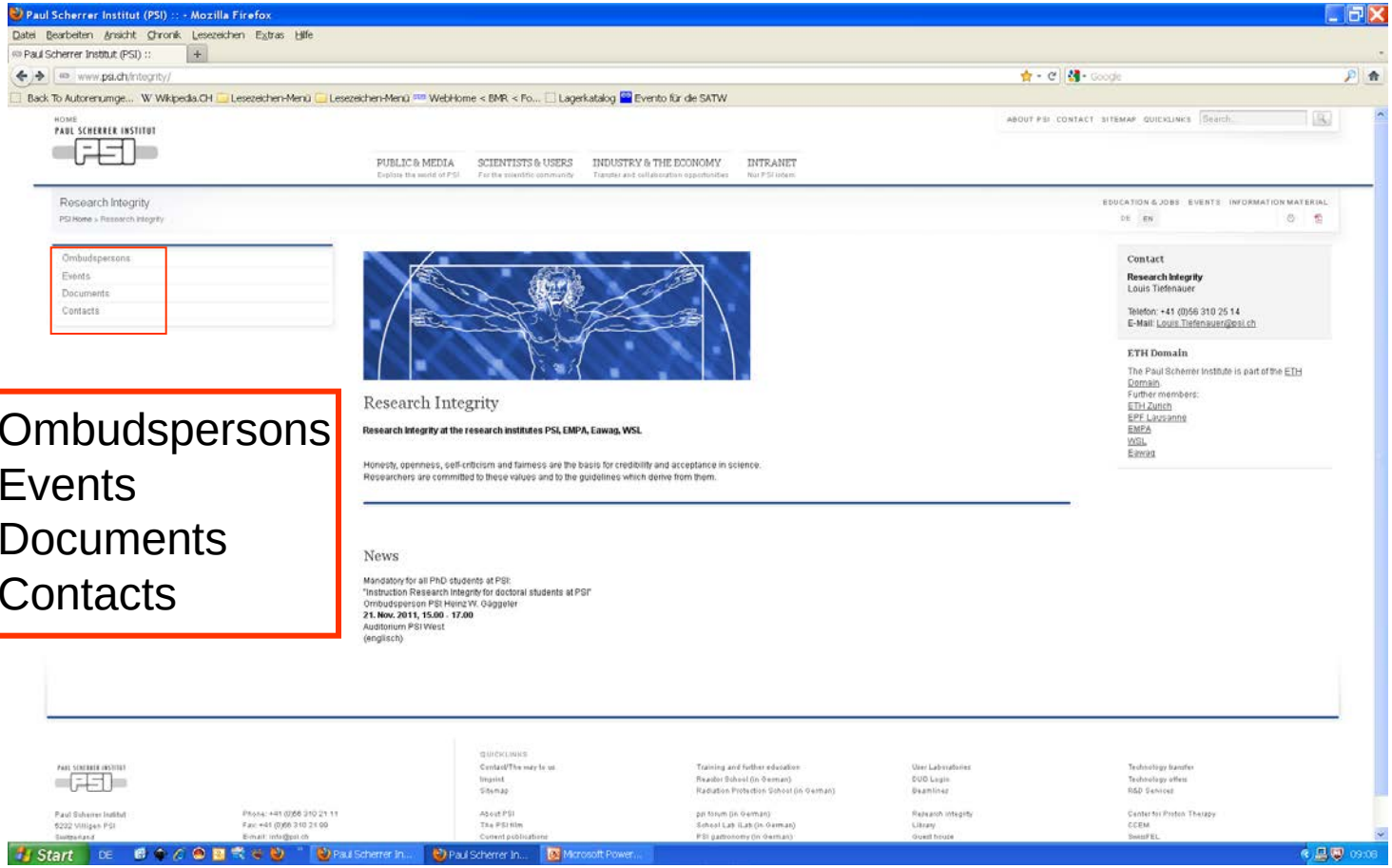
Responsible research



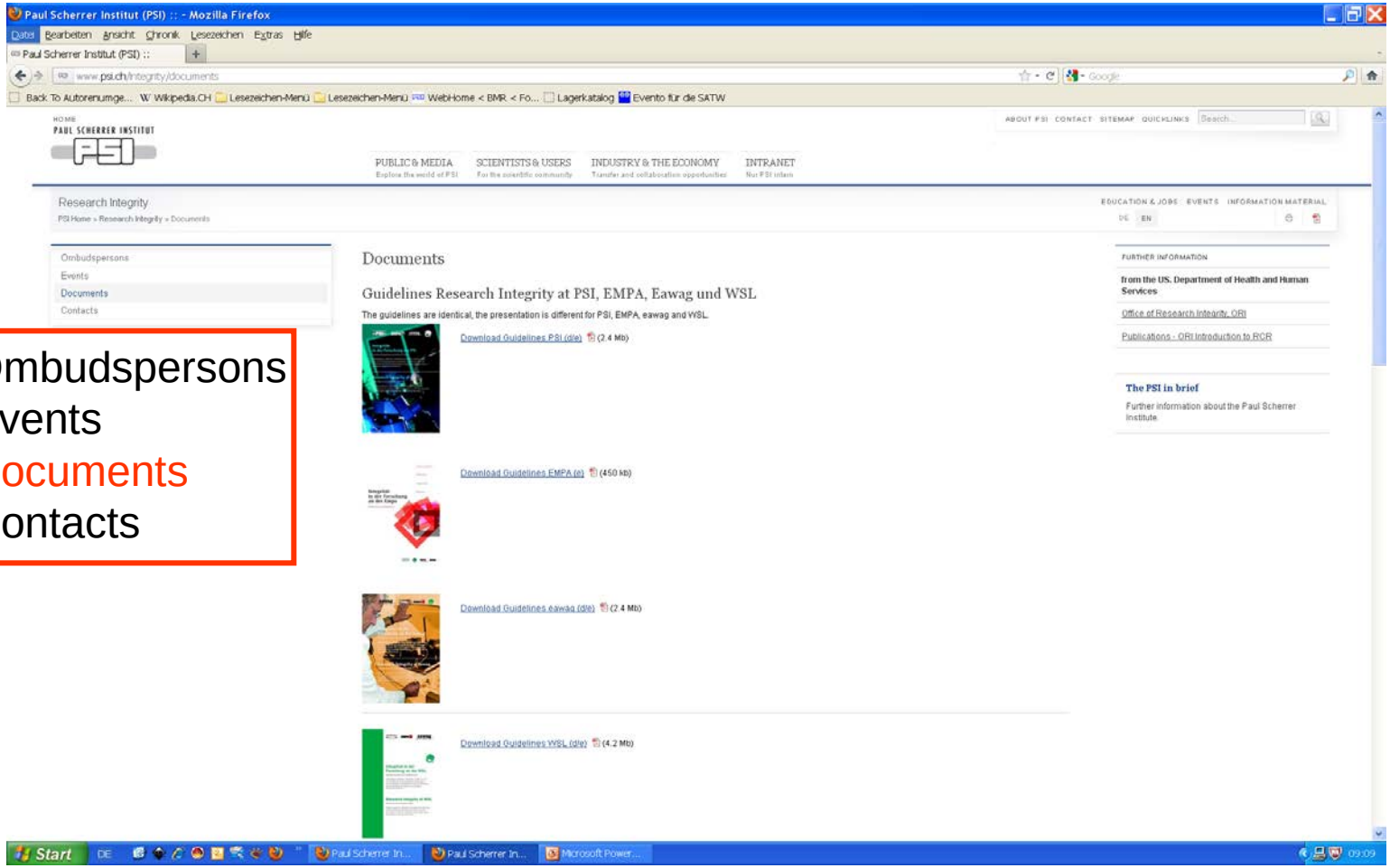
Research Integrity Homepage I



Research Integrity Homepage II

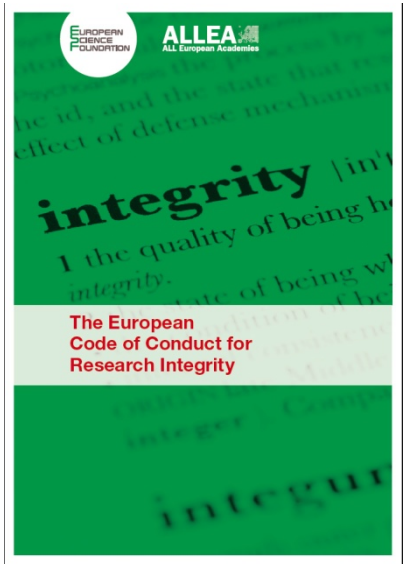


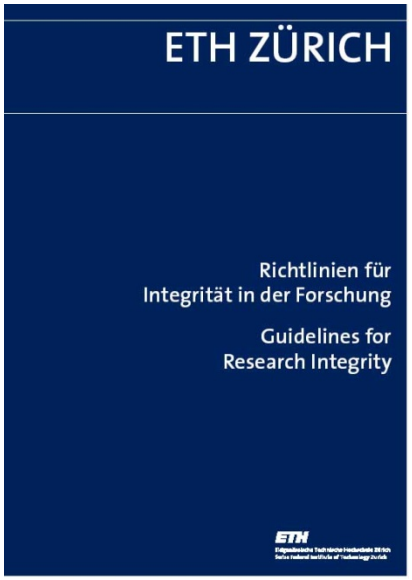
Research Integrity Homepage III



Ombudspersons
Events
Documents
Contacts

Other Guidelines





Honesty in all aspects of research
Accountability in the conduct of research
Professional courtesy and fairness in working with others
Good stewardship of research on behalf of others

Guidelines PSI, WSL, EMPA, Eawag

Major guidelines topics

Honesty: data managenment
avoid misconduct

Openness: conflict of interest
open science

Self-criticism: quality management
research procedures
dealing uncertainness

Reliability: reporting to society
effective self-regulation
professional data management

Fairness: authorship
rewarding system
reviewing

Honesty, openness, self-criticism, **reliability** and fairness are the basis for credibility and acceptance in (of) science**.** Researches at PSI are committed to these values and to the guidelines which derive from them.

Guidelines: Revision 2013

Revisions 2013

Fortpage: reliabiltiy

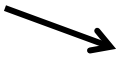
1. General
   Research leader is support

2. Integrity in Research

2.1 Research Planning nanoparticles, trans-boundery collaborations

2.2. Execution of research

2.3 Publication of research results



Publication: self-criticism uncertainess
Autorship: detailed procedure to find a author order
References: avoid plagiarism in proposals

3. Integrity of peer reviewing: reminding of principles and values

4. Final regulations

Report suspected research misconducts

1. General

Workshop 05.06.2014

Scope

In the context of international collaborations, in particular in large, international research consortia, these guidelines may be adapted.

Definitions

Researchers are experts who are charged with the planning and generation of new knowledge, products, processes, methods and systems, as well as with the management of these projects, therefore also including bachelors, masters and doctoral students. The *scientific community* comprises all researchers.

Research Leader

The leader of a piece of research, or a research project (the Research Leader), is the responsible person (also called the Principle Investigator, or PI) who is in charge of defining and achieving the research goals. He or she ensures that all persons involved are aware of these guidelines and committed to their implementation and is supported by the employer therefor.

2.1 Research Planning

Selection of research objectives and methods

The freedom of education and research is ensured within the Constitution of the Swiss Confederation (BV Art. 20). Researchers are free to select their research objectives and methods, taking into consideration the prevailing strategy of PSI, the research programme, the available resources and justified restrictions.

Restrictions of freedom in research

b. Risks which are specific to PSI: protection against radiation and laser beams, the safe handling of chemicals, fissile material and synthetic nanoparticles

Third-party projects

The duties and rights to research results in projects (co-)funded by third-party investment and undertaken at PSI must be specified in a contract with the sponsor before the start of a project. The responsible persons must pay attention to retain the freedom of research and independence as far as possible. Recently released guidelines for trans-boundary collaborations in research * should be respected.

* Monteral statement on collaborative research

2.2. Execution of research

Collection, documentation and archiving of primary data

Each person involved in a research project bears the responsibility for that part of it which lies under his or her direct control. In particular, the person who conducts the experiment is responsible for the correctness of the acquired data, and the PI for the data management (processing, storage and utilisation).
Access to primary data, in particular data used for publications, has to be ensured after its acquisition for a sufficient period of time in accordance with accepted internal and external regulations, and the destruction of primary data must be regulated.
Storage of laboratory logs and electronically stored data must be accordingly organized and its access controlled. The PI is responsible for the secure storage of material and primary data after completion of a research project.

Generation of research results

Misconduct such as the fabrication and theft of primary data, plagiarism, or improper manipulation of data should be strictly avoided.

2.3 Publication of research results

Publication of research results

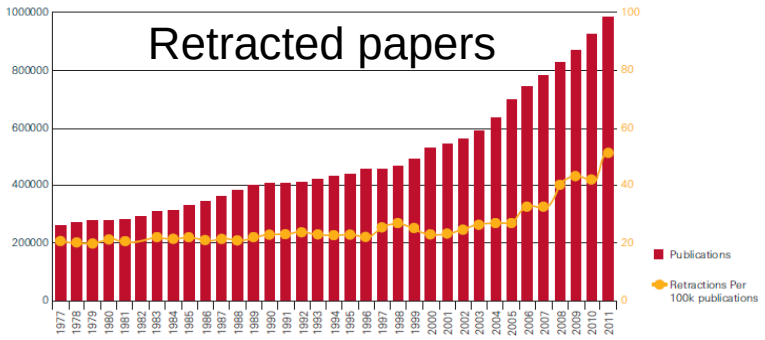
Research results are to be published in a coherent and concise form, while the subdivision into a number of small, incomplete publications (salami tactics) and the publication of the same content in various scientific journals or media (duplication) is prohibited. Uncertainness, uncertainty and ignorance should be openly and adequately addressed in the discussion.

Data management

- Data should be: accessible, intelligible, usable
- Data interpretation, reduction and storage

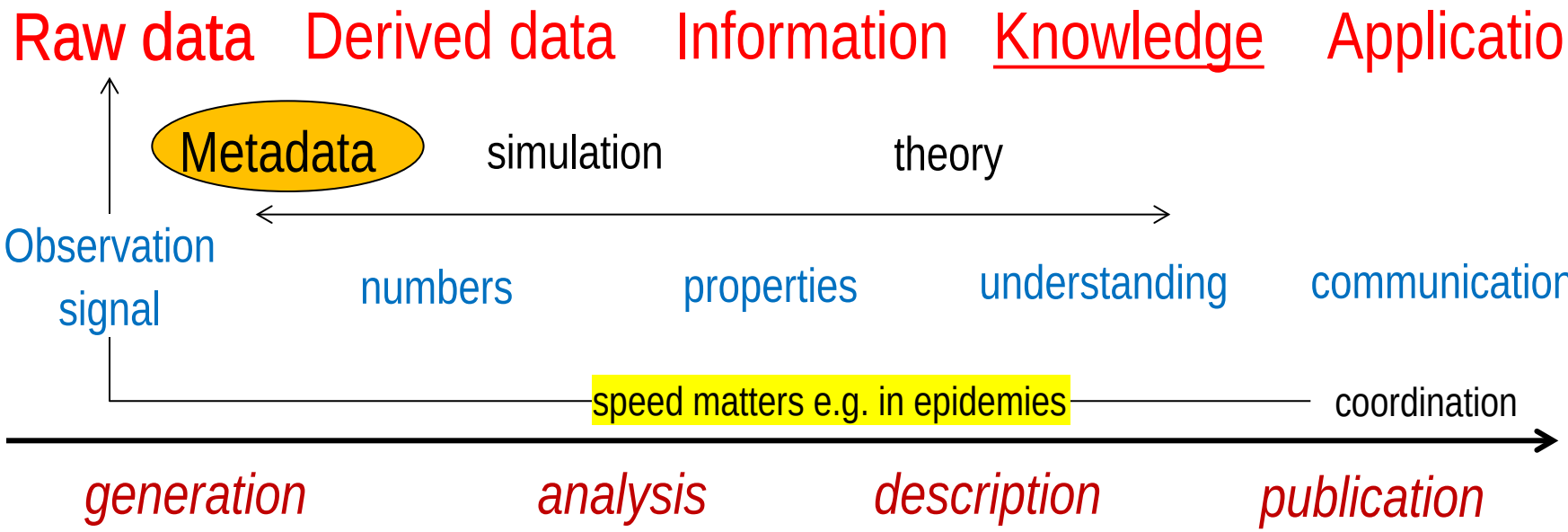
Science is revisable!

Figure 2.5 Number of publications (columns) and number of retractions (line) relating to clinical trials: 1977 - 2011[112]



Honest error vs. fraud

Excursus: Science data management



Data should be:

accessible zugänglich	*intelligible* verständlich	*accessible* nachvollziehbar	*usable* *brauchbar*
↓	↓	↓	↓
Data storage / property backups etc.	Data reduction readable	Data interpretation metadata	Data format

2.3 Publication of research results

Authorship

Reputation is the most valuable asset of every researcher. The assessment of the performance and the quality of a researcher is primarily based on his or her publications and their impact. A fair publication practice is therefore of central importance for all researchers.

A person is considered as an author of a scientific publication who fulfils *all* of the three following criteria:

a. Personally providing either a significant contribution to the planning, to the execution, to the supervision or to the interpretation of a piece of research,

b. participating in the drafting of the manuscript, and

c. approving the final version of the manuscript.

2.3 Publication of research results

Authorship

Authorship and the order of authors must be discussed and agreed upon at an early stage with all those involved. Before starting collaborations responsibilities and procedures for giving credits and for publishing should be agreed upon. The

The corresponding author, generally the PI, has overall responsibility for the content of the publication and is charged with checking that the designated authors fulfil the criteria for authorship. All co-authors are accountable for the accuracy of content, correct presentation and conclusions that have been drawn from the data, to the extent that they can be verified.

2.3 Publication of research results

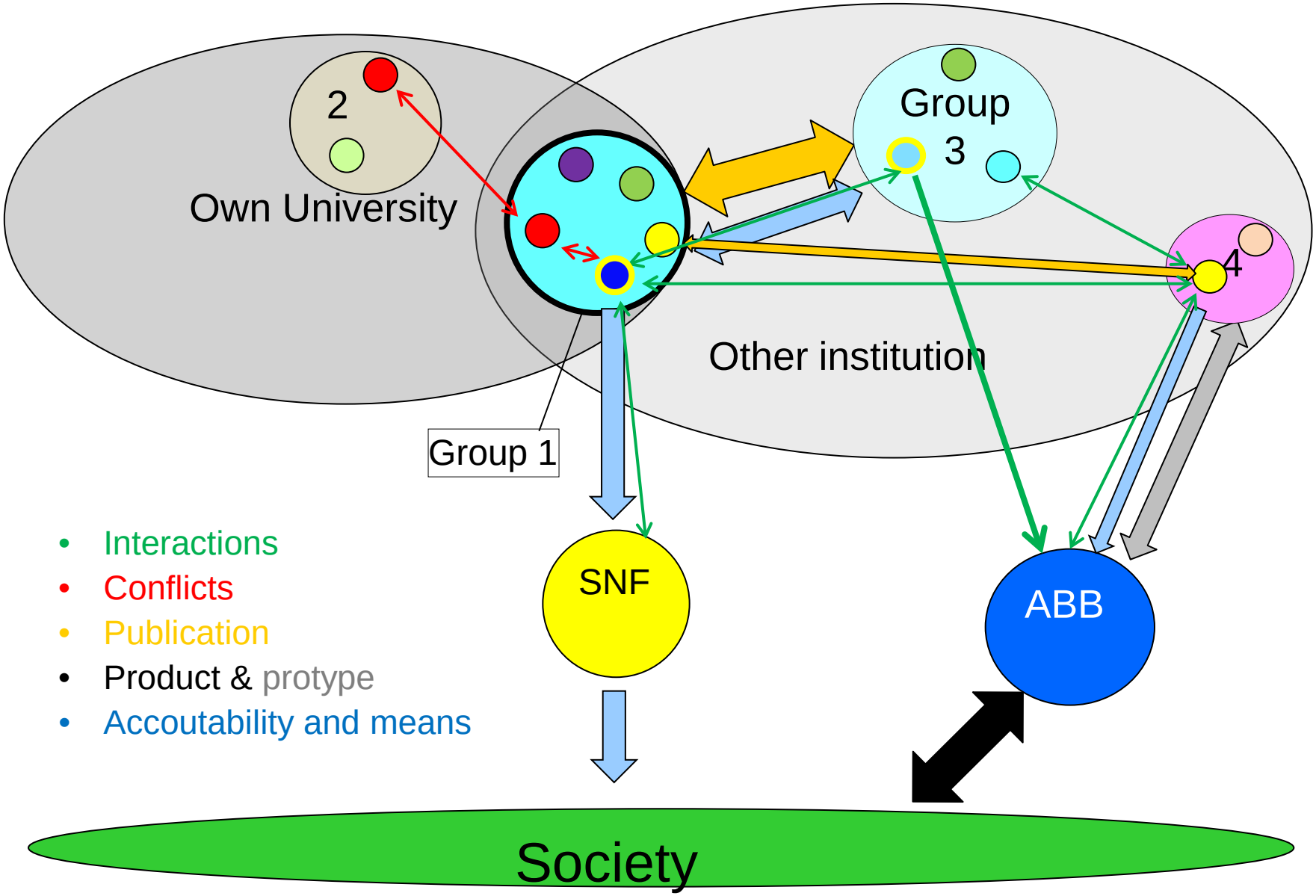
References

Authors must give their sources of material and methods they have used and cite any work of others that has been used.
Full or partial use of the work of others, without correct citation, is plagiarism and impermissible. Guidelines for avoiding plagiarism in publications as well in proposals are respected.
The sources of financial support for the project from third parties should be fully acknowledged.

3. Integrity of peer reviewing

Reviews are carried out according to transparent and adequate criteria and should at the appropriate level be proofed, if the responsibility to the society such as autonomy and dignity of persons, dual use-issues, safety, etc. have been reflected.

Research interactions



- Interactions
- Conflicts
- Publication
- Product & protype
- Accoutability and means

4. Final regulations

Action following alleged violation of integrity

Researchers should report to the appropriate authorities any suspected research misconduct, to justify the trust of the society in self-regulation of sciences. Confidential and independent mediators can be addressed as consultors.

11. Reporting Irresponsible Research Practices: Researchers should report to the appropriate authorities any suspected research misconduct, including fabrication, falsification or plagiarism, and other irresponsible research practices that undermine the trustworthiness of research, such as carelessness, improperly listing authors, failing to report conflicting data, or the use of misleading analytical methods.

Your duties

- ***Respect* guidelines** (are legal part of working contract)
- ***Avoid* misconduct** (violations are persecuted; especially fabrication, falsification & theft of data, plagiarism, FFTP, etc.)
- ***Contribute***
  - to benefits of science (**results!**)
  - to credibility of sciences (self-criticism)
  - to acceptance of sciences (open days, popular sciences)
  - to advancement of sciences (seminars, education, etc.)
- **Report** (Ombudsperson for all topics) misconduct and deviations early