RESPONSE FROM THE YOUNG ACADEMY OF SWEDEN TO THE OPEN CONSULTATION ON SCIENCE 2.0.

In the event of introducing ”Open Data” as a general feature, there are numerous important considerations that need to be addressed. The Young Academy of Sweden considers the following points vital.

- **Differences between disciplines and types of data**. The nature of what constitutes “raw data” differs immensely between disciplines. It is easy to see “Open Data” in, for example, gene sequencing, computational sciences, and materials. It is far less obvious in scientific areas with more complex “raw data”, such as legal or business cases and interview materials in social sciences, psychology, etc. Differences between disciplines and the nature and origin of “data” need to be fully considered – “Open Data” should be applied where it is meaningful.

- **Quality of data**. How will the quality assurance of “Open Data” be ensured? Aside from a review process, also extensive metadata are required to be published together with the data themselves.

- **Due credit**. How will it be ensured that due credit and career-merit value is given to researchers (often young researchers) who generate “Open Data”? This may not be an issue if data are published in data-oriented journals such as Nature’s Scientific Data (in which case due citation to the journal article is required), but is an important concern for material included in databases.

- **Confidentiality**. How will the balance of confidentiality vs. free access to data be handled? This is important for any research involving integrity-sensitive material (see “Ethics approval” below), but also for any research involving industry and businesses, where the requirement to maintain industrial and business secrets needs to be respected.

- **Ethics approval**. For any research requiring ethics approval, including research involving integrity-sensitive material, the publication of “Open Data” must be fully considered and approved already at the ethics-approval stage. This requires a fundamentally different ethics-approval process than today.

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- **Trust and scientific responsibility**. Who carries responsibility for "Open Data"? Researchers working with own data are accountable for the reliability of those data. If performing an analysis on other researchers' data, to what extent is the "user-researcher" scientifically responsible for the data? A concrete example of such a situation is if a researcher achieves and publishes important scientific results (in themselves flawless) based on "Open Data", where the data as such later turn out to be flawed. Should the publication then be retracted?

- **Prevention of scientific misconduct**. Despite the many major advantages, the broad availability of online scientific publications and efficient software for analysis does have the downside of a disproportionate increase in plagiarism and falsification of data (see e.g. RetractionWatch). Sadly, scientific misconduct will no doubt occur also with "Open Data". Scientific journals today routinely use plagiarism-detection software to screen incoming submissions for textual overlap with published sources. Similar measures are required to counter plagiarism and manipulation of "Open Data".

The Young Academy of Sweden is an independent, interdisciplinary forum for a selection of the most talented young researchers in Sweden within all scientific fields. The Academy enables meetings across disciplinary boundaries, giving rise to unexpected initiatives. Young Academy of Sweden was formed 2011 at the initiative of the Royal Swedish Academy of Sciences and currently has 40 members. Young in this context is a researcher with a Ph.D. degree no more than 10 years ago.