Researchers and Open Data – Attitudes and Culture at Blekinge Institute of Technology

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Abstract. During March 2015, the Blekinge Institute of Technology library carried out an interview survey comprising around 36 senior researchers and postdocs mainly in engineering sciences, with the objective to get a picture of how research data is managed at BTH and to find out what the researcher attitudes are to sharing data. The survey showed that most researchers in the study were positive to sharing research data but lacked any experience of making data management plans and had little or no knowledge of data preservation or of sharing open data. Uncertainties about data ownership are also an issue.

Keywords. Open Research Data, Open Access, Data Management Plan, DMP, Research Data Management, RDM, survey, attitude

1. Introduction

There now seems to be consensus among research funders and policy makers that open research data increases economic growth; the quality and transparency of research; the growth rate of innovation, and that it enriches the civil society. It is not unusual anymore that research funders mandate so called data management plans (DMPs) where researchers need to document how their research data are to be managed, disseminated, shared and preserved. More and more universities are therefore trying to create good environments for handling data by developing plans for research data management (RDM). The Swedish Research Council recently submitted a government commissioned proposal for a national policy for open research data [1]. Behind this activity lies the EU commission recommendation from 2012 inviting member states to make all scientific articles and data produced by tax funds open access [2]. By 2016 it is anticipated that the Swedish government will approve new national guidelines for open access based on the Research Council's proposal. The original proposition is that all research data produced either wholly or partly with public funding is to be made openly accessible by 2025.

The Swedish Research Council recommends that higher education institutions now can be pro-active and prepare for research data management by:

- working actively on the issue of archiving and long-term preservation of research data;
- allocating funds for archiving and long-term preservation of research data;

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- collaborating on planning of technical solutions, processes and guidelines for researchers.

2. Method

During March 2015, the Blekinge Institute of Technology (BTH) library carried out a semi- structured qualitative interview survey, choosing 40 senior researchers and postdocs out of the ca. 200 employed researchers. The researchers were selected to reflect all BTH research areas, in order to get a fair picture of how research data is managed at BTH and what the researcher attitudes are to sharing data.

We used the BTH institutional repository to select 40 of the most productive researchers during the last three years. The researchers were then contacted by e-mail.

To our surprise a majority of the researchers (36), within a few days, replied positively to our request. During the interviews it was clear that many of them took this as an opportunity to get informed about the topic of research data management and discussions, questions and diversions were common. So instead of running for 10 minutes the interviews generally took around 20 minutes or longer.

We constructed a set of 9 questions specifically targeted to understand research data management and awareness.

The interviews were performed by subject librarians at the BTH library. The answers were entered into a web-based google form and finally the data was saved into an Excel spreadsheet and analyzed.

3. Results

Question 1: What are your main areas of research?
BTH is one of the smallest institutions of higher education in Sweden but with a relatively large share of research focused on computer and information science, electrical engineering, nursing and spatial planning. The research areas of the interviewed scientists reflect this structure and typical research areas mentioned in the survey are telecommunication, computer security, nursing, physical acoustics, software engineering, computer systems, climate aspects in planning, mathematic modelling, and mechanical engineering.

Question 2: What are the most common type data sets that you use or produce?
The answers here reflected a very fragmented picture of the use and produce of research data at the institute. Researchers in health science, sustainable development and planning mainly used qualitative observations of processes or surveys or interviews recorded or transcribed. The computer scientists notably used data collected from commercial companies. This data is then used for scanning financial transactions, for performance factors, measuring traffic or other processes. With some exceptions BTH researchers use or produce rather small or medium-sized data files in Word (doc), Excel (xls) or picture (jpg) formats. Files processed and created in software like SPSS, MATLAB, SPLASH, SPEC, PARSEC, STELLA etc. are also common.

Question 3: Who are your main research funders?
Without a doubt the Knowledge Foundation, a university research funder with the task of strengthening Swedish competitiveness, is the major funder of research at BTH.

Also very important is the Swedish innovation agency VINNOVA as are commercial companies, government agencies, municipalities and county councils. The Swedish Research Foundation, the major research funder in Sweden and at the same time the only funder that mandates Data Management Plans along with the European Commission, is only mentioned by 5 of the researchers as a source for funding. Seventeen of the researchers mentioned the Knowledge Foundation; 11 mentioned VINNOVA; 12 mentioned commercial companies and 16 mentioned either government agencies, municipalities or county councils as important sources for funding.

Question 4: Do you have any experience of using open research data or making your data openly available?

Twenty-two (61%) of the researchers did not have any experience of using open research data or making data openly available. Six (17%) said they used open data but never published open data themselves. Eight (22%) answered the question positively but the majority added that they may have used open data on several occasions but had shared only on single occasions.

Question 5: Do you have any experience of writing Data Management Plans?

Thirty-four (94%) answered no. Two (6%) answered yes. For several researchers Data Management Plans was a new concept. One researcher explained that he usually only saves the data and sometimes describes the data shortly and that usually is enough to satisfy funders and research managers.

Question 6: Who owns your data?

It is common that BTH researchers do projects with commercial companies. When this is the case an IPR (Intellectual Property Rights) agreement is created where it is stated who owns or can use the data. A large majority of the researchers answered that it is either the company or the researcher that owns the data. Only four of the researchers suggested it was the university or the state that owned the data. Six researcher answered they did not know.

Question 7: Are the data sets preserved in any way after the project is completed? If yes, how is the data preserved and who is responsible for it?

The majority of the researchers said they were responsible for the data and that they usually save their data between one and ten years. Most often the data is saved on computer hard drives. It seems that in many cases the data follows the researcher. Other means for safekeeping data was on servers, USB-sticks, CDs, tape, Cloud services and even in binders. In a few cases data sets were not saved at all.

Question 8: Would you consider sharing your data in an open archive? If not, why?

A majority of researchers were positive to sharing data if it is ethically and legally ok and if commercial companies and other partners agree to it. Four of the researchers were negative and meant that no one else could possibly have any use for this specific data or were reluctant since they did not have control over what others might do with the data, or said that sharing data would just create more work and problems.

Question 9: Do you use or know any specific archive for research data? If yes, which ones?

Twenty-seven (75%) of the researchers did not know of any archives dedicated for research data. The ones who named particular archives either only knew of them or had used them as data sources but had not deposited data there.

4. Discussion & Conclusion

Even though BTH has a focus on research in technical areas like computer science and electrical engineering, the data sets produced present a very varied and fragmented picture.

In order to support researchers writing DMPs, the library needs to build a competence not only around funder mandates for DMPs, but also has to understand the varied palette of file formats. Also important is to start cooperation with institutions that have curation skills. Smaller and more uncomplicated data sets could possibly be archived within the BTH institutional repository system DiVA (with a few systems upgrades) but the "big data" sets and the ones that need more sophisticated curating must go to adequate special subject repositories or data centers. The library could also be supportive with information on how to cite data sets.

So far in Sweden only the major research funder, the Swedish Research Council, has mandated DMPs in their applications. But since they are the leading research funder one can suspect that this practice will trickle down to other state- or semi-state – funded research agencies like the Knowledge Foundation and VINNOVA. Also the expected national policy guidelines for open access to scientific information will have a positive leverage on other research funder attitudes towards open data.

At BTH only a small minority of the researchers are funded by the Swedish Research Council. The majority of researchers receive funds from the Knowledge Foundation or VINNOVA. Commercial companies are also, to a great extent, involved in funding or as partners in research projects. This can partly explain why researchers at BTH do not have that much experience of DMPs or any experience of making their data openly available.

Ownership of research data is a tricky question. Many researchers in our study believe they own the data if it is not owned by a commercial partner.

So who owns the data really?

In Sweden it is actually the university, as a government agency, that owns the data. Official documents held by Swedish agencies are in principle public [1, 3, 4]. The idea that individual researchers own the data has no legal support in Sweden. Here is clearly a need for clarifications and information from both university and government level on what the case is and what the exceptions are regarding ownership. When is data state property and when is it not?

From believing that you own the data follows the notion that you can do with it as you please. And the survey reflects this attitude – the data follows the researcher and therefore there is seldom any preservation of the data. It is either disposed of or saved on hard drives, USB sticks or servers for as long as it pleases the researchers or project managers.

BTH has since 2006 an open access mandate for research publications and the awareness of this is quite high. The attitude towards open access publishing is also generally very positive. This attitude is reflected in the answers to question #9 where 32 out of 36 researchers said that they would share their data if they could legally and ethically do this. At BTH it is common practice to cooperate with commercial companies and this fact complicates the process of making researchers share data.

The survey has shown that even if there is a positive attitude towards sharing data the need for information about and support for RDM and DMPs among BTH researchers is widespread. Information and clarification about data ownership issues

are also acute. The library therefore will start a dialogue with the Vice-Chancellor and the deans about preparing and supplying part of this support.

References

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