Open Access Publishing at the KTH Royal Institute of Technology

Statistics for 2011 - 2014

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1 Background

During 2011, a policy for scholarly publishing was implemented at KTH.[1] The policy states that researchers at KTH should strive to publish open access, either through well-reputed open access-journals or by self-archiving in KTH publication database DiVA. Publications published by KTH – i.e dissertations, bachelor and master theses, reports – are to be self-archived in DiVA as a general rule.

In this report, shares and trends of open access publishing at KTH are analysed starting from the same year the policy was implemented, in 2011. A report that analyses open access at KTH will then be released annually.

2 Open access publishing – an introduction

The concept of open access (OA) is based on the idea that results from publicly funded research should be accessible to all. This means that the results of such research should be published on the Internet in such a way that anyone can download and read it freely. In contrast, the traditional way to disseminate research findings has been to publish them in subscription-based, so-called toll-access journals to which only subscribers have access.

Open access to research publications can be accomplished in two major ways, either by depositing the peer reviewed author manuscript of an article into a public repository (this is known as the “green road”) or by publishing an article in an open access journal that is without subscription barriers and free for all (the "golden road”). There is also a third way that is usually referred to as “hybrid OA”. This is to make a single article, published in a traditional subscription based journal, openly available by paying a fee.

2.1 Green open access

The green road to open access is accomplished by publishing in a traditional, subscription-based journal and then depositing a copy of the article to a publicly available digital repository, a process known as self-archiving or parallel publishing. A digital repository is an, either institutional or subject based, Internet-accessible database with scholarly articles. It is usually the peer-reviewed, accepted author manuscript that is self-archived, although subject repositories, such as for example arxiv.org, also contain submitted manuscript versions. Different journals have different conditions for self-archiving. Some journals will allow the article to be self-archived at the time of publishing, while others impose an embargo period before the manuscript can be made publicly available.

The KTH Royal Institute of Technology (KTH) institutional repository is called DiVA and is accessible at http://kth.diva-portal.org/.

2.2 Gold open access

The golden road to open access is accomplished by publishing in a journal that does not use subscription barriers to access. The journal contents are accessible free of charge, and the journals are therefore known as open access journals. Since open access journals are not funded through subscriptions or license fees, some of them charges a so called Article Processing Charge (APC) to cover the costs of publishing. Other open access journals cover their costs through funding from

[1] *KTH:s policy för vetenskaplig publicering*, Dnr V-2010-0482, UF 0243, due 2011.

learned societies, institutions or research funders. An index of quality open access journals are found in the database DOAJ – Directory of Open Access Journals.[2]

2.3 Hybrid open access

Some subscription-based journals offer the option to make individual articles open access against a fee, a model known as hybrid open access. This means that the article will be published in a journal issue together with other articles that are subject to subscription barriers, while the article in question will be openly available for download without any further cost.

3 Methodology and definitions of statistics presented in the report

3.1 Methodology

Publication records for peer reviewed journal articles authored by KTH researchers and published during the period 2011-2014 were downloaded from the KTH institutional repository DiVA[3] in August 2015.

Journal identifiers in the form of ISSN numbers were extracted from the records and matched against ISSN numbers downloaded from Directory of Open Access Journals (DOAJ) in September 2015.

3.2 Definitions

3.2.1 Green open access

In this report, green open access is defined as peer reviewed journal articles deposited in full text, usually as PDF's, in the KTH institutional repository DiVA. Technically, the open access is identified by a link to the full text, marked as freely available in the DiVA system.

Article full texts (PDF's) uploaded to external systems outside of KTH control are *not* included in the statistics for green OA due to lack of data. Examples of systems that not have been possible to include in the green OA statistics even if the articles are freely available are:

- ArXiv and other subject repositories
- Organizational repositories at other organizations than KTH
- Personal or departmental websites or blogs
- ResearchGate and Mendeley

It should be noted that the number of articles published as green OA per year is not static, since article records and PDF's can be entered into DiVA retrospectively and PDF's in DiVA might be deposited with an embargo period of several months or even years, which makes them public at a later date.

[2] DOAJ (https://doaj.org/) is an online directory that indexes and provides access to high quality, open access, peer-reviewed journals.
[3] http://kth.diva-portal.org/

3.2.2 Gold open access

Gold open access is here defined as articles published in open access journals listed in the DOAJ. Technically, records were defined as being gold OA if there was a match between the registered ISSN number in DiVA and an ISSN number in DOAJ.

The number of articles per year reported as gold OA may also change due to retrospective registration in DiVA and changes in the DOAJ journals listing.

3.2.3 Overlap between green and gold open access

Some articles that have been published in open access journals may also be self-archived in full text to the institutional repository DiVA at KTH. Articles that are both freely available in a journal listed in DOAJ and self-archived in DiVA are in this report listed as "overlap". The overlap in OA publishing means that the sum of green OA and gold OA will be a bit larger than the total OA.

3.2.4 Hybrid open access

Hybrid OA in the form of freely available articles in subscription journals has not been possible to measure in this report, due to the present lack of data regarding hybrid OA publishing.

4 Results

The diagrams 4.1-4.3 show the total share of open access at KTH. In these diagrams only peer reviewed, journal articles are studied. As can be seen the total share of OA at KTH is rather stable during the period 2011-2014 while at the different schools the OA share may vary significantly.

In 4.4 the share of OA among different publication types is shown, and in 4.5 is shown the trend for OA publishing of doctoral theses. It is obvious that from 2011 when the KTH policy on scientific publishing was implemented, the share of theses in full text has fallen significantly within most KTH schools. This might be due to some decrease of information. While there was an information drive during 2011-12 regarding the new KTH policy on scientific publishing, the following years included no specific communication on the topic, except for information on the library website.

4.1 Share open access publishing for the whole period 2011-2014

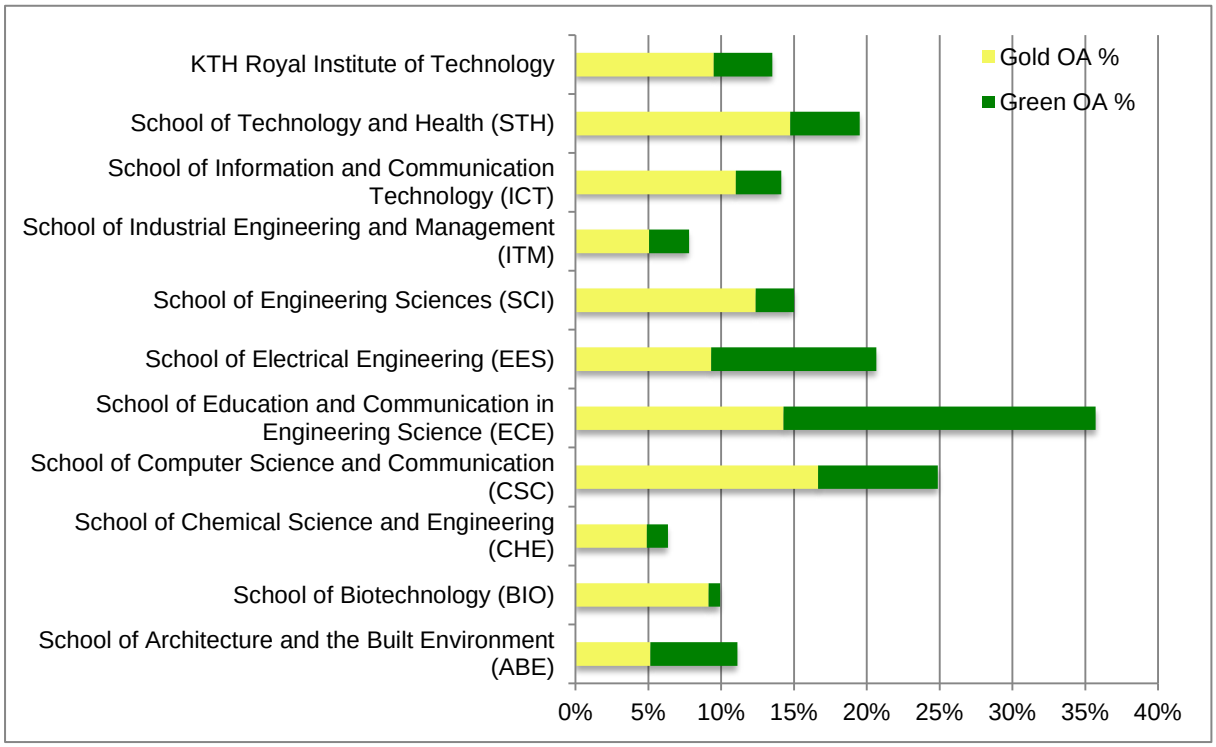

Fig 1. The two main different types of OA publishing stacked to a total share of OA publishing per KTH School and for KTH as a total. (For presentation purposes, the overlap between gold and green OA has been removed from green OA to make gold and green OA to sum up to the total share of OA per school and KTH.)

	Gold OA %	Green OA %	Overlap %	Total OA %
School of Architecture and the Built Environment (ABE)	5.1%	6.7%	0.7%	11.1%
School of Biotechnology (BIO)	9.1%	0.8%	0.0%	9.9%
School of Chemical Science and Engineering (CHE)	4.9%	2.0%	0.5%	6.4%
School of Computer Science and Communication (CSC)	16.7%	11.8%	3.6%	24.9%
School of Education and Communication in Engineering Science (ECE)	14.3%	28.6%	7.1%	35.7%
School of Electrical Engineering (EES)	9.3%	12.2%	0.9%	20.7%
School of Engineering Sciences (SCI)	12.4%	3.3%	0.6%	15.0%
School of Industrial Engineering and Management (ITM)	5.0%	3.7%	1.0%	7.8%
School of Information and Communication Technology (ICT)	11.0%	3.4%	0.2%	14.1%
School of Technology and Health (STH)	14.7%	7.2%	2.4%	19.5%
KTH Royal Institute of Technology	**9.5%**	**4.9%**	**0.8%**	**13.5%**

Table 1. Data for the diagram in Figure 1. Note that the sum of Gold and Green OA shares is larger than the Total OA share due to the overlap.

4.2 Trend for OA publishing 2011-2014 per KTH School and KTH total

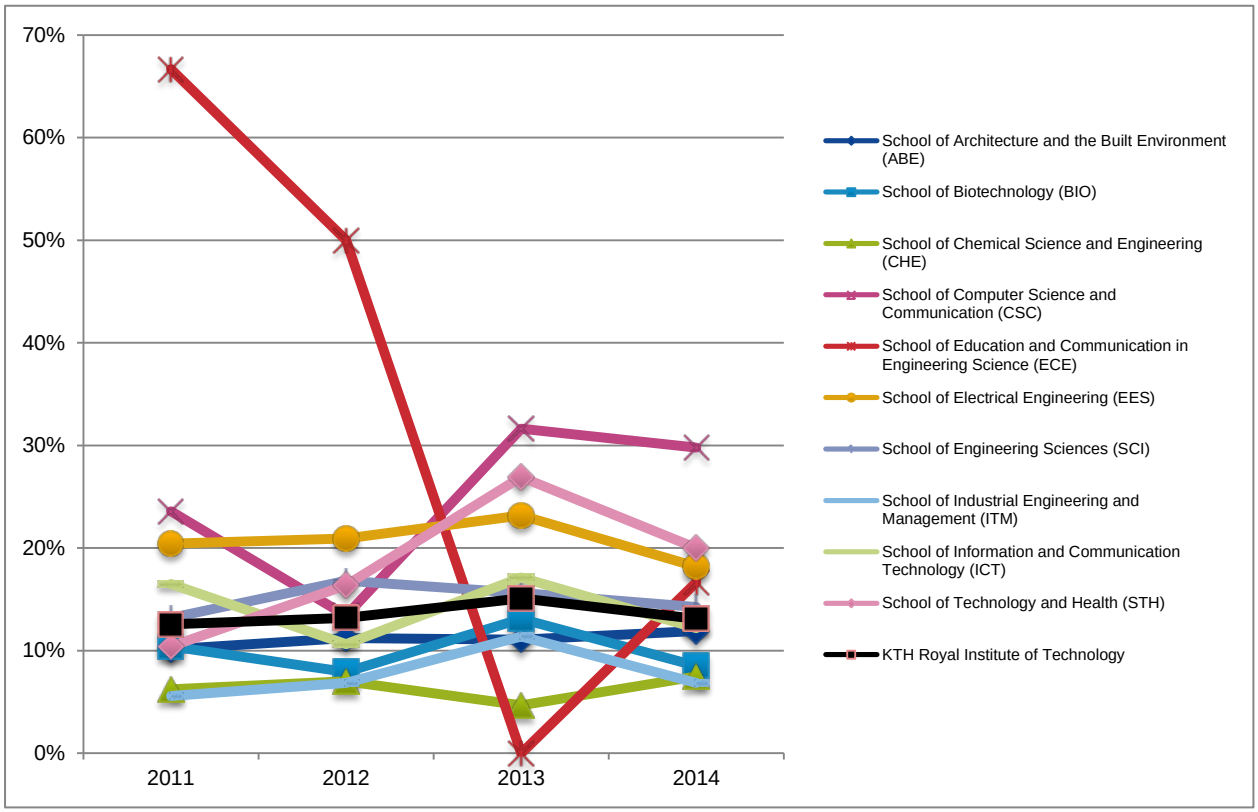

Fig 2. Trend for the share of total OA publishing for KTH Schools and KTH in total (marked in black) for the years 2011-2014. (The share of OA for the ECE school is very varying due to the small number of articles.)

4.3 Gold OA journals used by KTH researchers

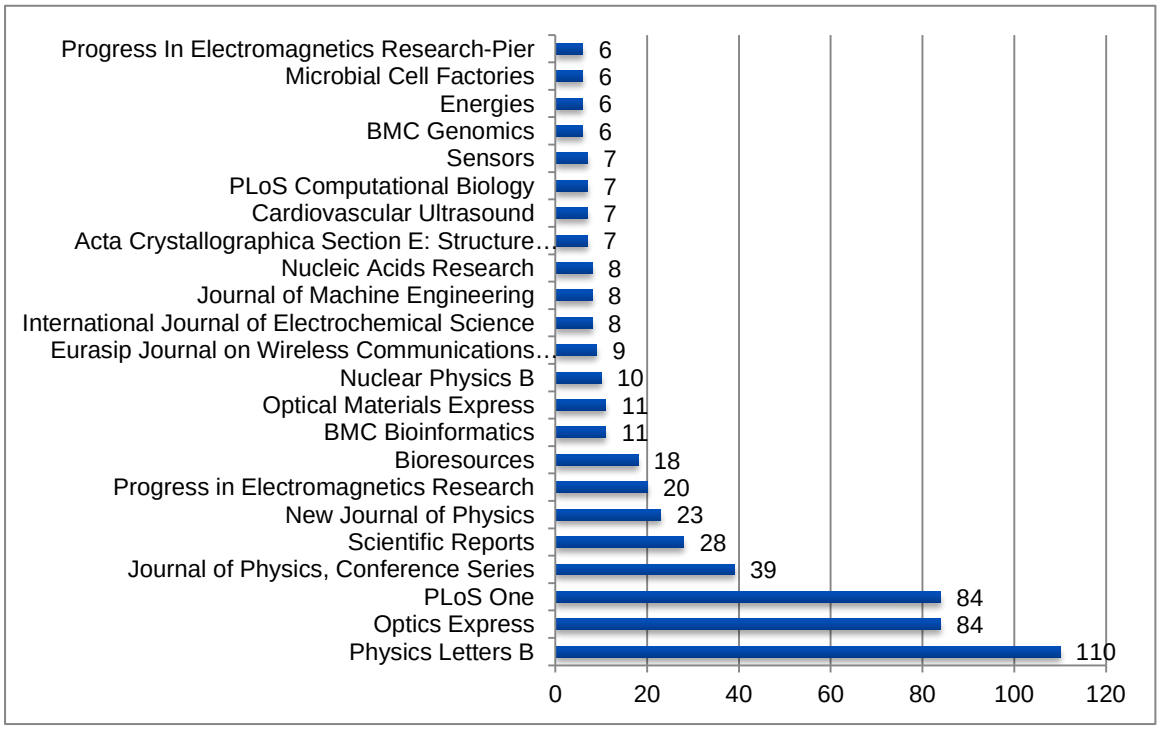

Fig 3. The top 23 journals used (more than 5 times) by KTH researchers for gold OA publishing during the years 2011-2013. The number of articles are marked at each bar.

4.4 Share of KTH OA publishing per document type

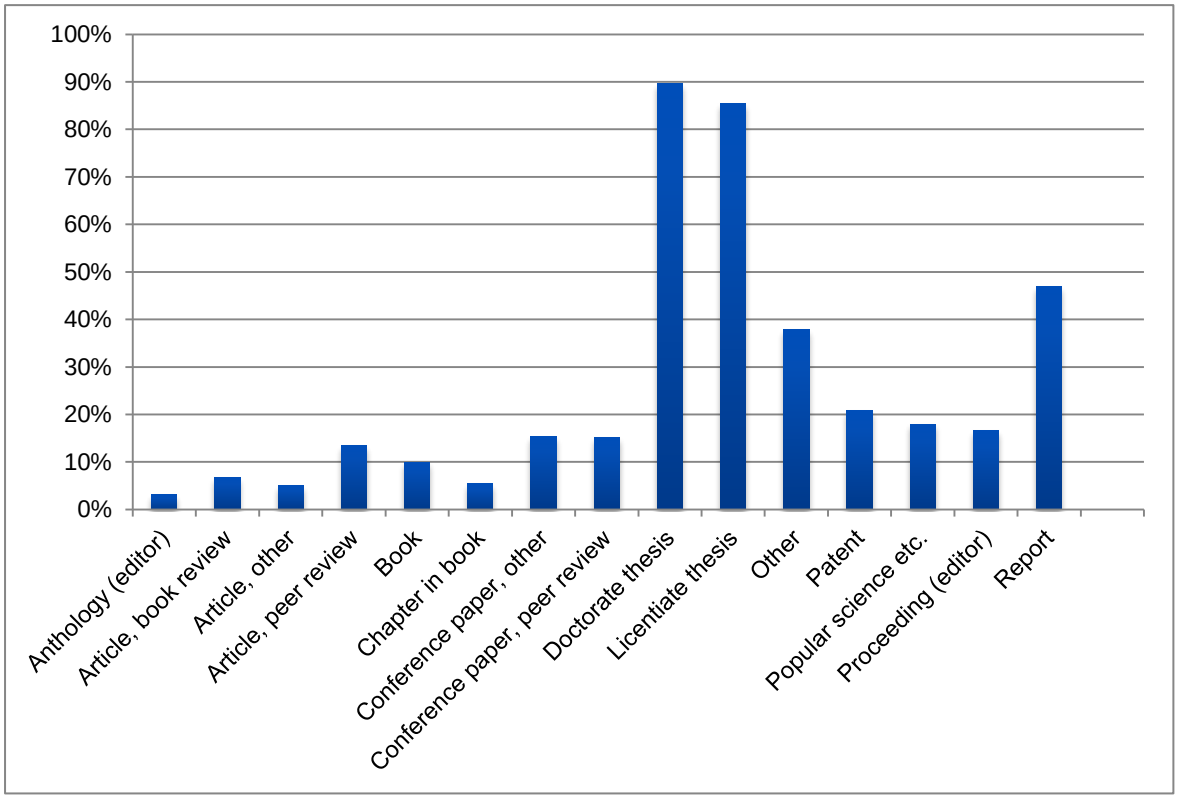

Fig 3. Share of KTH OA publishing for different document types for the period 2011-2014.

4.5 Trend for KTH Schools OA publishing of doctorate theses 2011-2014

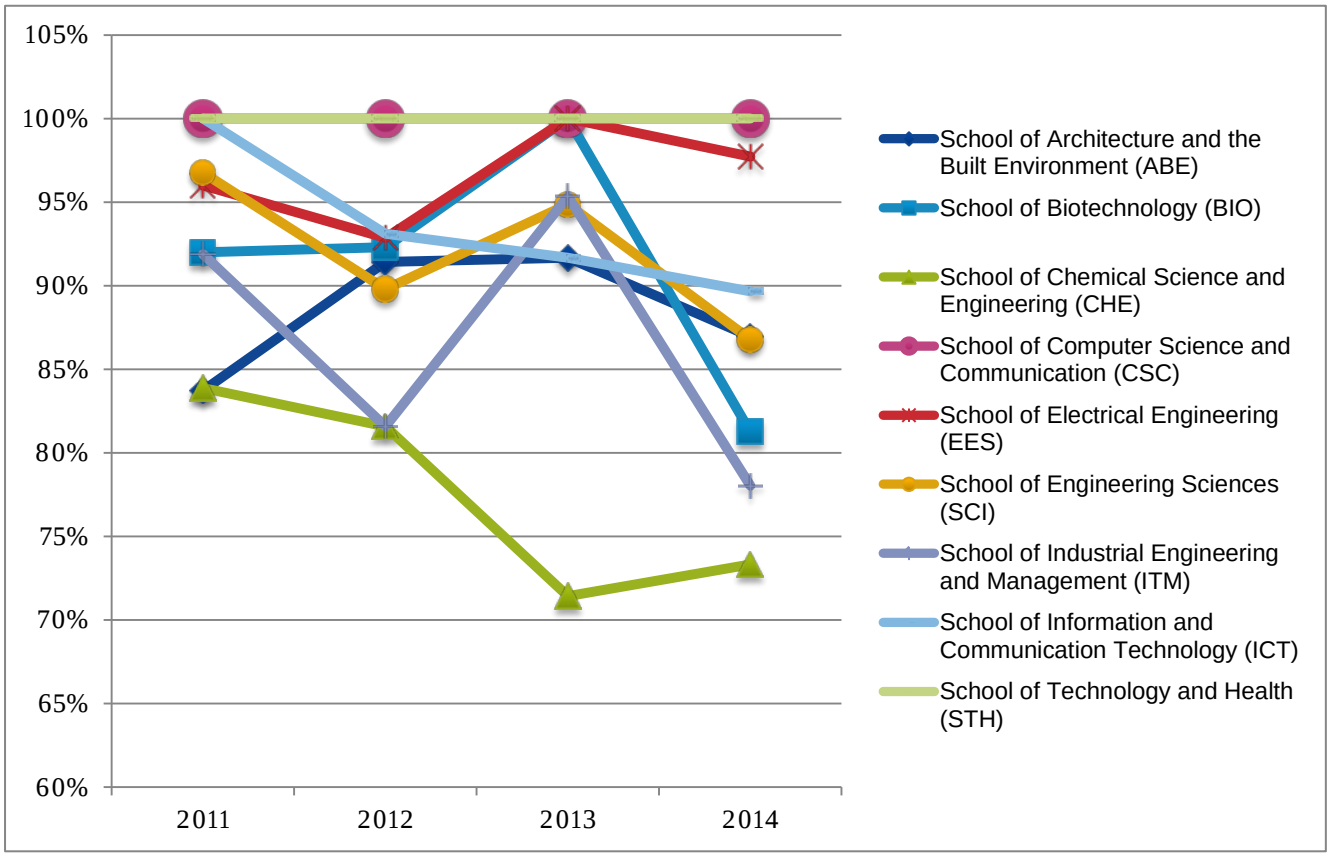

Fig 4. Trend for KTH Schools OA publishing of doctorate theses 2011-2014. Please note that the lower part of the diagram (below 60%) is removed from the scale and that the trend line for the CSC School is hidden behind the STH School, since both have a 100 % OA share for all years.