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Legally, “Wales is just a region of England,” even if it has its own political and social/cultural identity.

This causes variance in usage, but Aaron suggests using “extent” in statutes and reference to courts to clarify any confusion when adding jurisdictions—because there are differences, depending on the areas of law.

**Physical description 300 \$b as controlled vocabulary:** Inspired by a Program for Cooperative Cataloging (PCC) listserv thread regarding standard terminology in \$c (Qualifiers) under the Authorized Access Points—the idea here is to talk about the possibility of using a controlled vocabulary for physical descriptions in 300 \$b.

We already use authorized names and terms in 372, 373, and 374 while doing authority work, and we have agreed, within *Resource Description & Access (RDA)*, to use a list of terms in 300 \$b physical description, \$b illustrations, \$b maps, etc.—but there is no equivalent subject heading for “Illustrations” in LCSH.

I asked about the possibility of taking the same approach we use in authority work. We use the plural in all these subject areas as terms, or perhaps adding an \$i before \$b, acting as a relationship designator for materials such as maps.

For instance, I asked about the possibility of this: 300 ## \$i collection of \$b Jurisdictional maps (which neither exists currently in LCSH nor LC’s genre/form thesaurus).

It was a good forum, and I hope the remote access will enable more people to attend.

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## Software as a Service: Adobe Acrobat Professional and the Move to Adobe Creative Cloud

## THE INTERNET

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Over the past few years, Adobe phased out perpetual license desktop versions of Adobe Acrobat Professional, and the software is now available for purchase only through a monthly subscription service to Adobe Creative Cloud. This is a situation that has been brewing for a long time, and the same situation is coming with all kinds of office software beyond Acrobat Professional. It leads to new challenges for law firms, records managers, and librarians working with digital libraries.

### **Background: Phase Out of Desktop Licenses and Exclusive Sale of Monthly Subscription Cloud Licenses.**

Adobe Acrobat Professional is the definitive software for manipulating PDFs. It is not the only option, but from my personal explorations into alternatives, it pretty much is the only option. There are good alternatives for manipulating images and Microsoft Office files, but alternatives for manipulating PDFs tend to have limited features.

A few years ago, Adobe began to transition users to Adobe Creative Cloud.

Before that, going back to the 90s, Adobe would put out different numbered versions of Adobe Acrobat Professional (i.e. version 1, version 2, version 3, and so on). Those numbered versions were desktop software that you install and run. Assuming your computer had a compatible operating system, you would buy it once and run it forever, as long as you had access to a compatible operating system. Availability of a compatible operating system is a whole other can of worms, but a “shelf life” of 15 years for a single purchase seems realistic, based on me being able to run version 9, which came out in 2008 and for which support ceased in 2013, on a Windows 10 machine with no trouble. Each version had slightly different features. In general, newer versions can open older files, although some features in an older file might not be accessible in a newer version of software. For example, there was better support for embedded links in a PDF in very early versions, and newer versions of the software cannot necessarily access those. Each version also has a slightly different interface, with buttons moved into different menus.

Then, in 2011, Adobe released Adobe Creative Cloud, which is internet-based software where you download the software, then it authenticates monthly as you pay a monthly subscription for continued access. A subscription package includes Adobe Acrobat Professional as well as a group of other programs published by Adobe, which might include Photoshop, Dreamweaver, and Illustrator. Payment is by a monthly subscription fee. Over the next few years, Adobe stopped selling licenses to products that had moved to Adobe Creative Cloud. For Adobe Acrobat Professional, this came in a phased approach. The general public was no longer able to buy Adobe Acrobat Professional licenses starting in 2014, but governments and non-profits could still purchase licenses to a desktop version for employees.

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As of this year, it is impossible to purchase a license for desktop Adobe Acrobat Professional from Adobe. My guess is that some governments can still purchase it, for example, if a government entity has a regulatory requirement for buying a license rather than getting cloud access and puts up a fight. However, that is definitely going to phase out. One now has to purchase from eBay or another alternative marketplace in order to get a perpetual license to desktop software. This causes trouble with purchasing in an organization of any size. It is probably impossible to get a large set of licenses for the same version of the software, and having the same version is important if there is to be central tech support. For governments or organizations with purchasing policies, it might be nearly impossible to purchase from an alternative source at all. Eventually, only used copies or existing licenses will be available.

In addition, just as large organizations will have a central office which phases out things like Windows XP, large organizations will eventually begin phasing out desktop installs of Adobe Acrobat Professional. Reasons for that include security concerns over unsupported software and license management issues. As of October 2017, all desktop releases of Adobe Acrobat Professional are now unsupported by Adobe. Reasons also include concerns over tracking licensing information. In general, any organization aspires to track and maintain licenses centrally, but in my experience, there is usually a taskmaster, and turnover in that person's position can make it difficult to know what licenses and how many of each were purchased in the past. Anecdotally, what I am seeing in higher education in Florida is universities and colleges where the central IT office is phasing out desktop installs of Adobe Acrobat Professional—either by refusing to install existing licenses for employees newly setting up with the software and putting them onto Adobe Creative Cloud instead or by requiring all employees to go to Adobe Creative Cloud with no one grandfathered in. Previously, when an employee left, the license might be reassigned within the organization, but that is no longer being done, and organizations are accelerating the transition rather than keeping on using the purchased versions.

### **Pricing and Access Issues**

The obvious impact of the move to software as a service is in pricing and access issues. A monthly subscription fee means casual users who only need access to the software a few times a year have to pay a relatively high amount per use and probably will not get a license at all. For perspective, in 2014, academic licenses for Adobe Acrobat Professional were around \$70 for a one-time purchase, while Adobe Creative Cloud was a \$20 monthly fee. Fees for a private entity are higher for both perpetual license and subscription. The dynamics of pricing almost certainly mean that some people who previously would have had access to the purchased software now will not have access. This affects solo practice lawyers, who might previously have purchased a license and kept using it for years and who now will be faced with something like a small cell phone bill to be able to manipulate PDFs versus using other less full featured software to manipulate PDFs. This affects law offices, where maybe only a few select employees will get the subscription software and there is a periodic reassessment of who gets it. Before, there probably would have been a one-time decision to buy a bunch of licenses and then issue or restrict them primarily on the basis of whether or not the employee had access to any records systems where someone might say “that software lets you tamper with documents, so no one with access to this records system should have this software” or some other security policy might block access. Now, with a monthly fee, financial concerns are probably a bigger issue in determining who gets access and who in a firm or library has the software. Additionally, who gets it is probably an opt-in with some hoops to jump through, whereas before it was probably an opt-out.

### **Authenticity and Workflow Issues**

In my current job, I work with libraries to prep files for uploading to digital libraries. As part of that, I will sometimes discuss workflows for prepping files. The kinds of concerns that come up are things like if you run optical character recognition on a PDF, are you also resampling the images in that PDF or not? Adobe Acrobat Professional has a setting for whether or not to resample when running text recognition. Workflows vary from one version of the Adobe Acrobat Professional software to the next in terms of where the settings buttons are located. For me, I like knowing that the other person has desktop software because then there is a clear version of software I can look at, the workflow gets set up once, and the version of software the person is using stays exactly the same with the buttons staying in the same place. With software as a service, an update to software might be forced centrally, and that might change default settings or introduce new options. A central update also might roll out without the change being apparent to whoever is using it. That might result in a workflow that introduces problems into files, and the problems might show up much later in an audit or check of files, only after the faulty workflow has been in place for a long time and affected many files.

The materials I work with are things like old postcards and newspapers, which have long-term value for our culture as people, as historians, and as artists. Nevertheless, they do not have the same issues related to authentication that something like evidence in a court case would have. The issue is not that people have to be careful handling files and do audits. Instead, the issue is that with specific releases of desktop software and a closed system, it is more apparent when exactly a workflow needs to be set up or checked. A next version can be scheduled and installed when the person using or reviewing it has a

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block of time to check over feature changes and understand those changes. With software as a service and rolling updates, and especially with cloud-based platforms, an update could come out at a bad time when no one is available to review it.

In the context of legal documents, this is problematic. First, there might be a need to go back and look at an older workflow and older software release in order to verify what the software was doing. One might need to prove that five years ago, if this specific workflow was used on this set of PDFs, then metadata remained intact for files embedded in the PDF. With software as a service, it might not be possible to get back to a specific version of the software and check over what the impact was of a specific workflow in the past. Second, there might be an issue of a change to software rolling out that causes trouble with workflows, with the problem discovered much later after originals are no longer available.

## Conclusions

There is not much to think through other than the broad issues raised by software as a service. Everyone has to deal with this. In the near future, more and more software programs will move to an internet-delivered software as a service model, and the only concrete thing to do is to understand the issues in order to try to address them. Our field has unsettled issues in other areas, such as licensed access to electronic rather than owned law books, and the future keeps happening regardless of whether or not a neat, sensible solution exists.

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## LIBRARY METRICS

### Cost/Value Analysis for Metadata Creation

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The value of library catalog records and other metadata may seem obvious to those who create the metadata. In an ideal world, we would all be able to spend as much time as we need in order to create as much metadata as is needed to describe perfectly each item in our libraries' collections. However, it is all too common for libraries to be operating in a "do more with less" environment, and questions may arise as to the value of spending so much time on metadata. Librarians may begin to desire to measure the value of metadata creation. It turns out that this can be difficult to measure in a meaningful way, but some librarians have attempted to develop metrics in order to do a cost/value analysis for metadata work.

In a presentation given at the Society of American Archivists annual meeting in 2010, Joyce Celeste Chapman of North Carolina State University Libraries discussed studies that she and her colleagues have done in order to begin to assess the value of their library's metadata creation. Their study focused on metadata for archival materials, but I feel that its results are applicable to metadata creation for other kinds of library collections as well.

For their study, Chapman and her colleagues chose to focus on a narrow definition of value: discovery success. Specifically, they chose to define "discovery success" in terms of the Functional Requirements for Bibliographic Records (FRBR) user task identification: "the process by which a user confirms that the item described corresponds to what they were searching for" (Chapman, p. 4).

In the study, researchers performed five discovery tasks using archival finding aids; during the completion of these tasks, their use of various metadata elements was observed. These participants were then interviewed about their perceived usefulness of the metadata elements in the finding aid. Three methods analyzed the usage of metadata elements: a behavior score, based on observations of the researchers; a rank score, based on the participants' ranking of the metadata elements' usefulness; and a frequency score, based on participants' discussion of how frequently they used each of the data elements.

Interestingly, the three types of analysis for the study produced identical results in ranking the different metadata elements. From most useful to least useful, the rankings were:

1. Collection inventory
2. Abstract
3. Subject Headings
4. Scope Note
5. Biographical Note (Chapman, p. 13)

For the cost aspect of this study, Chapman and her colleagues then studied the amount of time it took for catalogers and archivists at NCSU to create these metadata elements. One notable finding was that the creation of biographical notes took a disproportionately high amount of creation time, compared to its value to researchers. In one of the two archival