
Metadata Matters in Personal Information Management

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Abstract

In this short position paper, I discuss the neglect of metadata as a valuable resource that impacts the usability and usefulness personal information. In terms of advances in user experience design, we have come a long way from the first GUI where information objects were first presented as 'files' in the desktop metaphor. However, we have made little progress in capturing and making use of metadata. This paper considers what metadata is available and presents a few ideas about how to put it to good use for the short- and long-term.

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Introduction

Metadata is data about data. For example, the metadata associated with a container of data can carry information about the data's age, owner, size, type, who's looked at it, who has access permissions to see, edit, add to, share or delete it. It can also provide information about its provenance, authenticity, who likes it, what people can do with it, who last looked at or changed it and much more.

In many circumstances metadata is only in the head of a data object's owner. For example, one might have a text file of notes about what was said in a meeting. If it were to show up on a stranger's computer by magic, that person would probably not be able to make much sense (or use) of it. The file is, in part, useful to the one that created it because she remembers critical information *about* contents of the file that is not contained in the file. This may work when personal information is not shared with others, but increasingly

we can and do share our personal information online. Another problem with metadata-in-the-head is that over the long term, we tend to forget the context that makes content meaningful and we ourselves are reduced to the position of strangers, unable to determine what the content of a file means to us unless we have carefully associated useful metadata with it.

The standard metadata that is provided by cloud services is rather impoverished or hidden, as has been the tradition with GUIs in the past. I argue that there are significant opportunities to make personal information more meaningful to others and our future selves by adding more metadata, or by making what metadata there is more visible. This position statement takes one example to illustrate how enhancing the

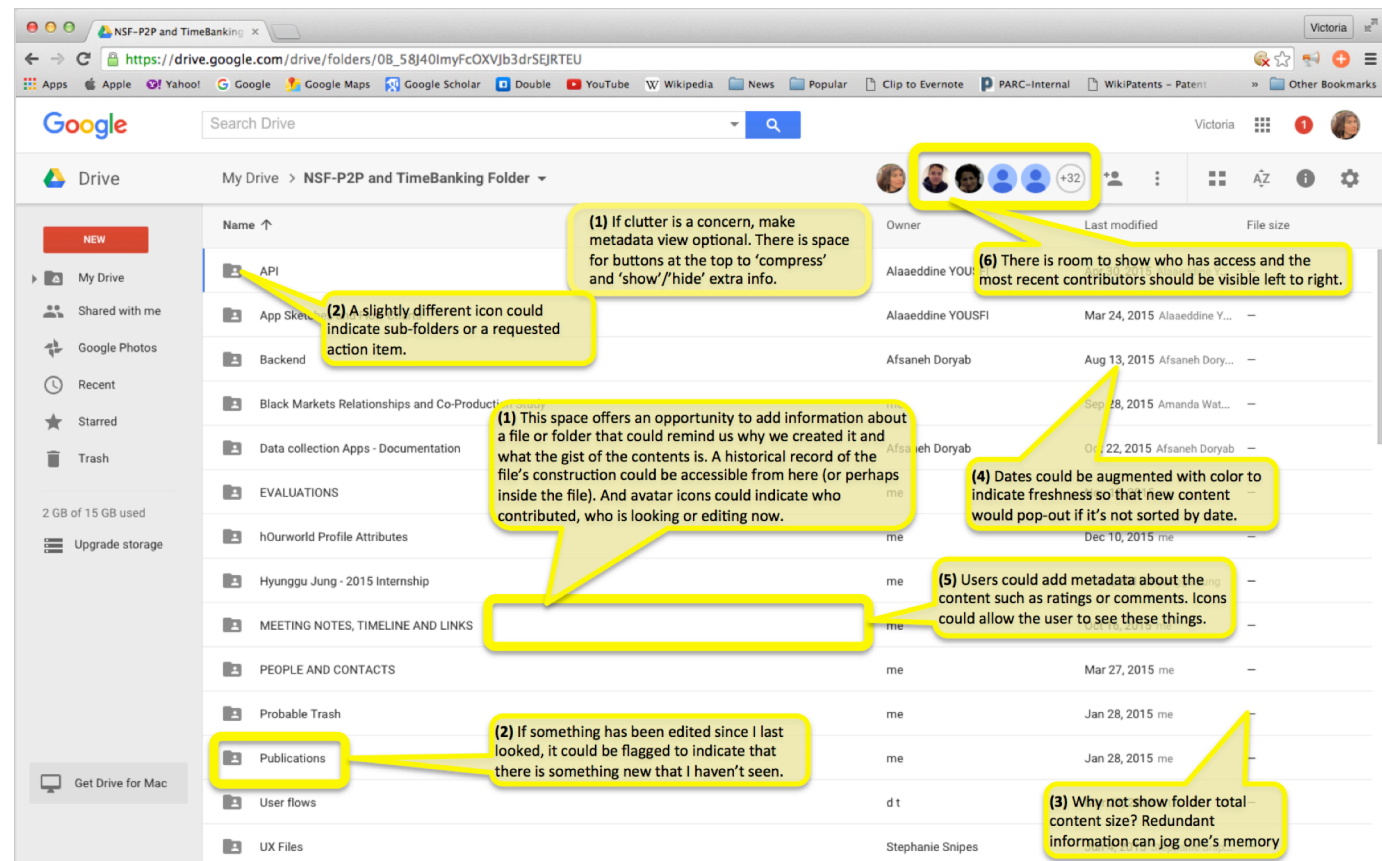


Figure 1. Examples of metadata enhancement to support collaboration

visibility and utility of metadata can make personal information more usable to ourselves and others. The example I choose is Google Drive in which users can store information from their personal projects and share it with others.

Google Drive: Opportunities for Awareness-Enhancing Metadata

Figure 1 shows a screenshot from one of my Google Drive folders, which is a workspace I created to organize information about a government-funded project that I am working on. Because of Drive, files that would previously have resided in my private workspace are now accessible to others and they can share the content that they create for the project within this folder.

Over time, I find myself losing track of what is in the many folders that my colleagues and I have created and why it's there. Metadata could be extremely helpful in reminding me about the content and in helping me make sense of it more quickly each time I come back to this folder. In the following I list some examples of helpful information. The numbers are indexed to the call-outs in the figure.

1. There is ample space to provide additional metadata in all the blank space. Notes added to a file or folder could remind me why I created the folder. Automatic text analysis could create a word-cloud, which, if I mouse over an icon, would give me some indication of the gist of the contents. An automatically created historical index of changes to the file could allow me to quickly jog my memory about when I or others worked on it. Avatar icons could be used to indicate who's working on it now.

And, if clutter is a concern for a user, buttons could be provided at the top to hide or reveal metadata.

2. Folder icons themselves could be modified to indicate more about their contents such as whether they have sub-folders or associated action items. And if something has been changed since last I looked at it, this too could be indicated to draw my attention.
3. Information about the amount of content in a folder could be provided to jog my memory. I might only remember that the folder I want was the biggest or a very small one, so size could help me find what I'm looking for if I have forgotten the name over time.
4. Once there are a lot of items within a collection, it might be useful to enhance the date information with color to make the new stuff stand out more. Dates could turn from light green to beige like fading leaves to indicate aging.
5. We could allow users to rate or make comments on folders, which might come in handy in some applications.
6. While drive shows a few avatars of people who have access to a folder, it lists them in alphabetical order which isn't much use. I would want to see who has been active most recently. There is easily room to make more avatars visible and list them in order of who has most recently accessed the folder.

Conclusion

This has been a simple contribution that attempted to illustrate that there are many opportunities to make personal information more usable by adding metadata that can help us understand more about the information we store in our personal and shared collections. This would be especially useful in cloud services where content is so often shared with others, making intelligibility of content so much more

important. And metadata that helps others, eventually becomes helpful to ourselves as we lose the metadata-in-the-head that provides the context that makes content meaningful.