Library of Congress, 'The Signal'
Digital Time Capsules

July 7, 2011 by Leslie Johnston
https://blogs.loc.gov/thesignal/2011/07/digital-time-capsules/

I was recently asked a question that I had never considered before: If I wanted to create a digital time capsule, how would I ensure that it is usable in twenty or fifty or more years? The International Time Capsule Society provides tips on creating a physical capsule. But what about the digital?

Time Capsule, Big Basin State Park, California, photo by Leslie Johnston

At its core, a time capsule is a collection of memorabilia documenting a place, organization, events, or a family. Think of a digital time capsule as being something like a multimedia scrapbook, containing records and mementos, including born-digital and digitized version of physical keepsakes. A time capsule should be more than a random collection, though; it should tell a story.

There are media time capsule services such as You Tube Time Machine or the Wayback Machine. Flickr and Facebook store personal histories. These services provide a key element – they can display the files that are stored there, so no additional software or operating environment is needed. All or part of a time capsule could include pointers to online services. There is a risk: which cloud services will still exist in fifty years?   And will older files still be stored there, and be readable?

What about CDs and DVDs?   Even if you include all the software needed to install and run the programs that can display your files, will there be CD and DVD drives? Both are well-documented, long-lived media formats, so saving one copy of all your files and software on this sort of media as part of a time capsule is not a bad solution.

How do you select formats for the future? To really use a file fully, you would need a complete operating environment (operating system) and the program that created it, or at least one that recognizes it. I can't open some 25 year old files in my possession without transformation software, because I cannot run the original software on my modern machine. So don't rely on a single format – save files in at least two formats that can be read by multiple types of software. To maximize the odds of compatibility with future computers, save copies of scans and digital photos as JPEGs and an additional format such as TIFF or GIF, or even PDF. Save copies of word processor documents as text (.txt), PDF, and/or XML. Save copies of spreadsheets and databases as comma-delimited files (.csv). Save video files as MPEG-4 (.mp2) or AVI. Save audio files as MPEG-3 (.mp3), WAVE, or BWF. To select appropriate file formats, check out criteria at our Sustainability of Digital Formats website.

digital, by Darwin Bell, on Flickr

You'll notice I said save a copy. Also include the source file in its original form. It's a best practice to retain an unadulterated file, as almost any transformation to another format is "lossy" – information such as text formatting is lost. Fifty years from now we may have better tools to read older files!

One possibility is to create a self-contained time capsule, but selecting hardware is difficult. Will you still be able to plug in a USB or Firewire drive? Will you be able to open or display any for the file formats?   Only if you provide the hardware and operating environment and software. It might be better to store files on a Phone or Laptop with its own complete environment: an operating system and programs that can provide access to the files, and read any additional cards or drives needed for storage. Just be sure to package the battery up separately and securely and include the power cords!

Some pointers to consider:

Name your files with human readable names that include the date and some identifiable string, such as 2011_06_Dinner_Austin_TX. Organize your files into groups within folders that represent events, places, or people, and name the folders with the same sort of comprehensible names, beginning with date. If you want the folders and the files to appear in a certain order, then take care to name the files to ensure that, such as 2003_05_40thBirthdayParty_01, 2003_05_40thBirthdayParty_02, etc.

Include lists of file names (including file extensions, e.g., .doc or .jpg) with descriptions of the contents of the files, such as names, places, dates, and events. The lists should be plan ASCII text files (.txt), to have the greatest possibility of being opened.

An email service such as futureme is a possibility for sending a timed notification to one or more email addresses, with instructions/location/password for the time capsule. Of course, that assumes that a particular email address will still be in use in twenty or more years. I have one that I've used for thirteen years, but even I don't plan to still have that address one year from now.

Given all the possibilities, how would you create a digital time capsule?

Source: Library of Congress, 'The Signal' blog, 'Digital Time Capsules', Leslie Johnston, July 7, 2011

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