Fixity and Integrity

Another characteristic of archival records is the unchanging nature of the information they contain. The records serve as a reliable voice from the past, and that reliability is based on the stability of their form and content. Records may suffer some degradation over time without seriously affecting their reliability as evidence of the past. Paper may yellow and inks may fade, but the record remains readable.

Demonstrating the integrity of electronic records is more challenging. Current methods use a hash value that can detect a change to an individual bit. Unfortunately, those tests cannot indicate whether the change has a significant impact on the content. A single flipped bit might look like a typo or speck in an image. But if information is encoded as a binary zero (no) or one (yes), a flipped bit could completely reverse meaning.

Archivists must find systems that can spot changes resulting from degradation and correct those errors. Current practice keeps two copies of every file. The system constantly checks for degradation, and replaces a corrupted version with the second — presumably — correct copy.

Preservation of Unique Records

Archival records are also distinguished by the fact that they are typically unique. Loss of a single publication distributed in even a modest run is mitigated by the availability of other copies. If a copy is destroyed in a disaster at one repository, other copies are likely available at other repositories.

Because records have no redundant copy, archivists take exceptional care to protect their holdings. A second copy of records kept as a check against loss of integrity can be stored offsite, eliminating the risk of losing unique copies. The ease of duplicating digital records and transferring them for offsite storage is one of the greatest benefits of digital records over paper records.

Authenticity

Another important characteristic of archives is the need to ensure the authenticity of the records. The archives must be able to demonstrate that the records are what they purport to be, that they are genuine and not fakes or forgeries. As records are often used in litigation, archivists must be able to demonstrate that the records meet the requirements of authenticity outlined in a court’s rules of evidence. When used for historical research, the authenticity of the records serves as a foundation for understanding the past and is essential for factual scholarship.

Cost

Even in the best of times, archives seldom have adequate resources. Like libraries, archives are now being asked to do double duty, working parallel in tangible and digital universes, and often with little or no additional funds. Unfortunately, investments in information technology can be very expensive. Some commercial systems designed to meet archival requirements may be prohibitively expensive for even medium and large sized archives.

Why LOCKSS?

Archivists and IT professionals must work together to find solutions that can keep archival records accessible for a very long time. They must ensure that the records’ integrity is preserved, that the records are protected against disaster, and that their authenticity can be demonstrated. All this must be done within a limited budget. Unfortunately, because digital preservation is so new, there are no time-tested best practices.