



Shadow of doubt

As digital records increasingly replace paper records, Luciana Duranti is developing preservation methods that ensure accuracy and authenticity

The essential records of one of history's most advanced civilizations did not take shape in stone but rather, in a substance known for its highly malleable form. While the flexibility of wax proved effective for effortless inscription by the ancient Romans, this same flexibility also left it vulnerable to unauthorized tampering. To combat any unforeseen threat to the authenticity of the record during transfer from its originator to the safekeeping of a secured vault, the Romans built a tunnel underneath every government office that connected to the official public archives. At the archive threshold, a sequestered custodian would accept the incoming tablets into his custody and place them safely in the archives. There, they would remain accessible to all Roman citizens who could request copies from the custodian, a process that would ensure the authenticity of the records and their contents.

Wax tablets have long-since been replaced as the preferred method for records creation. However, the solutions developed by the Romans to safeguard the precious information inscribed on these highly fragile tablets have given Luciana Duranti, Chair of Archival Studies at UBC Vancouver's School of Library, Archival and Information Studies (SLAIS), vital insight on how streamlined procedures can help tackle the preservation challenges posed by 21st century technology.

"With paper records, we can put them in a box and forget about them and even after 500 years, they would still be there," Duranti explains. "The primary problem with digital records of the 21st century is that our actions and transactions, including those of a legal and medical nature, are often exclusively entrusted to the digital medium. Digital records can easily be lost, corrupted or tampered with. That's why it's imperative to develop systems, in terms of technology and procedures, that overcome these limitations."

Duranti would know about the fragility of digital records: She is leading the world's largest effort to establish methods and produce guidelines for preserving accurate and authentic digital records over the long term. Known as InterPARES (International Research on Permanent Authentic Records in Electronic Systems), the project, now in its third phase, involves collaborations with archivists from over 20 countries including China, Italy, the U.S., Brazil and South Africa, as well as input from scientists, artists, government, industry and partnerships with other international research projects dealing with complementary issues.

According to Duranti, the goal of InterPARES is to develop methods and practices for ensuring records that are generated today will be trusted in the future. A digital record's "trustworthiness" can be assessed based on three criteria: the accuracy of data, the reliability of the creation process and persistency over time of the identity and integrity of the record.

One of the biggest obstacles to verifying the authenticity of preserved digital records is the loss of originals. Because technology quickly becomes outdated, it is recommended that digital objects (data, documents, records, etc.) be transferred to new technologies every three to five years. But as soon as this material is transferred, its form is altered, putting the integrity of its content into question.

Duranti explains: "When we were dealing with clay tablets, parchments or paper, we could always test the authenticity of the record on the record itself by examining, for example, the ink and the style of writing. Through that, you could confidently say if a record was or wasn't authentic. With digital records, we no longer have originals so authenticity is an inference."

As a means to ensure short- and long-term trustworthiness in digital records, InterPARES combines development of theoretical and methodological ideas with the issuing of direct-knowledge

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guidebooks to give individuals and organizations around the world practical instruction on how to select the right technology and formats to transfer files to new technologies, prevent file tampering and ensure retrievability. Upgrading digital records to new technologies every few years can be a costly endeavour, which is why InterPARES also studies the financial and ethical issues surrounding digital records preservation and helps organizations and governments determine which records should be carried forward and which could be discarded.

The creator and preserver guidelines to digital records creation, maintenance, use and preservation have been instrumental to organizations that rely on Duranti and her team to help them preserve their vital records so that they can be accessed and trusted. Even previously aloof sectors are now realizing the benefits of secure recordkeeping and are slowly approaching Duranti for help.

"An environment that has been taboo for us is the medical environment because of patient records," says Duranti. "Organizations want to be helped but they're terrified because of privacy issues, which can infringe on both corporate and individual security. But preserving accurate medical records is a life-and-death issue so we're collaborating to find a way to help without the need for disclosure of sensitive information."

For Duranti, preserving accurate and authentic records has a more fundamental purpose, one that is relevant to all sectors and all individuals of society: "We must be able to provide a justification for our actions to future generations. That's why we have archives; to preserve the records so people can understand the reasons for certain choices and can verify what happened. I can't think of an area in our life where this is not an issue. Records are what research is conducted on and if you do not know whether your sources can be trusted, your research is worth nothing." ■

The InterPARES Project is primarily funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), the only project ever to receive three consecutive rounds of funding. In addition, InterPARES was selected by SSHRC, among more than 10,000 projects funded in its 30 years of existence, as one of the 30 research projects and the only one from UBC featured in its 30th anniversary book: Celebrating 30 years of Cultivating Excellence in Canadian Social Sciences and Humanities Research.