InterPARES 2 Project
International Research on Permanent Authentic Records in Electronic Systems

Domain 1 Research Questions

Case Study 14:
Archaeological Records in a Geographic Information System: Research in the American Southwest

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1.1 What types of documents are traditionally made or received and set aside (that is, created) in the course of artistic, scientific, and governmental activities that are expected to be carried out on-line? For what purposes? What types of electronic documents are currently being created to accomplish those same activities? Have the purposes for which these documents are created changed?

- Traditional types of documents specified in the case study are legacy data, including site data and maps.

- Documents are created and set aside in compliance with set archaeological operating procedures, professional codes of conduct, and standards of research performance guidelines.

- The Coalescent Communities (CC) GIS is almost entirely paperless. It consists of the following digital entities:
    - Database: MS Access.
    - Files: images, word processing files, spreadsheet/flat files; files created in the GIS application software.
    - Compilations of pre-recorded archaeological site data from multiple documents, repositories and researchers. These datasets exist in various formats, such as paper, spreadsheets and pre-existing databases.
    - Outputs include maps for publications, printouts of maps and tabular data for other researchers and analysis relevant to different research projects.

- The CC GIS participates in archaeological research:
    - It assists the Center's staff and partners "in integrating our growing archaeological knowledge of the region with recent computer advances in the analysis of attributes such as terrain, hydrology, and land-ownership."

    - It investigates the aggregation and migration of peoples in the prehistoric Southwest

1.2 What are the nature and the characteristics of the traditional process of document creation in each activity? Have they been altered by the use of digital technology and, if yes, how?

- Traditional document creation processes are not mentioned in the final report.

- There are no formal procedures in place due to the size, structure and organizational culture of the creator. Inferred processes have been developed on an ad hoc and idiosyncratic basis by the GIS Specialist.
    - Most creation and maintenance procedures are undocumented.
    - Incidental documentation sometimes occurs during the creation of transitory documents (for example, the steps taken in analyses likely to be repeated).
    - Data are created in relation to a project, and are therefore project-focused.
    - The process of database construction is informative, as it is based on the nature of the data gathered from the field at a particular time, and the GIS Specialist has no "formal" GIS training.
    - Processes of CC GIS creation include developing archaeological models, building the GIS framework, populating the database, conducting analyses and revising the GIS.

- Digital technology has greatly altered the document creation process because the GIS uses data in the system to create new data layers and views. Essentially, simulation models manipulate data to obtain real and hypothetical results to research questions, predict archaeological resources, and to track or predict site vandalism and the possible need for site preservation.

1.3 What are the formal elements and attributes of the documents generated by these processes in both a traditional and a digital environment? What is the function of each element and the significance of each attribute? Specifically, what is the manifestation of authorship in the records of each activity and its implications for the exercise of intellectual property rights and the attribution of responsibilities?

- The GIS digital entity elements and attributes consist of the following:
    - Text and numeric characters
    - Images (.jpg)
    - File formats: ArcView's proprietary formats (.shp, .shx, .dbf), Adobe Portable Document Format (.pdf), ASCII text (.txt), Access (.mdb), Excel (.xls), Word (.doc), EndNote (.lib)

- Issues of authorship and copyright exist on a number of levels:

- Federal, state and municipal archaeological resource preservation regulations and policies directly effect the intellectual ownership and copyright of archaeological GIS systems and data[1]
- The Center for Desert Archaeology (CDA), as the originator and creator of the GIS, has rights and responsibilities associated with intellectual ownership and copyright
- The GIS is created directly under the authority of the GIS Preservation Specialist; only he can enter and manipulate datasets and obtain outputs, and only he and the volunteer have access to the actual application
- A special sign in the form of an organizational logo is viewed by the creator as signifying authorship and intellectual ownership of the data

1.4 Does the definition of a record adopted by InterPARES 1 apply to all or part of the documents generated by these processes? If yes, given the different manifestations of the record's nature in such documents, how do we recognize and demonstrate the necessary components that the definition identifies? If not, is it possible to change the definition maintaining theoretical consistency in the identification of documents as records across the spectrum of human activities? In other words, should we be looking at other factors that make of a document a record than those that diplomatics and archival science have considered so far?

- The CC Database, the MS Access component of the GIS, is a record according to the definition established by InterPARES 1.

- It possesses fixed content and form:
  - Prior to "significant" changes to the database, including the import of new datasets, a copy is burned to CD-ROM. These copies are retained indefinitely, primarily for the purpose of enabling "rollback" to an earlier version of the database in the event that errors are later discovered in the current version of the database.

- The CC Database participates in the overall activity of conducting archaeological research of peoples in the prehistoric Southwest, as well as providing answers to research questions.

- The CC Database possesses an archival bond with all of the other records within the Coalescent Communities Project Series.

- Three persons (author, writer, addressee) are clearly involved in the creation of the CC Database:
  - GIS Specialist (author, writer), CDA archaeologists (addressees), Center for Desert Archaeology (creator, originator)

- The CC Database possesses an identifiable context:

[1] This topic is covered extensively in the case study Final Report, both in the "Context of Creation and Management" and in Appendix A.

- Juridical/administrative: Actions of archaeologists are governed and influenced by a complex variety of federal and state legislations, as well as by ethical and professional guidelines and standards.
- Provenancial: The CDA comprises the creating body of this case study.
- Procedural: Specific phases are carried out in the creation and operation of the CC Database and GIS.
- Documentary: The CC Database and GIS are part of the CDA fonds.
- Technological: The GIS is a spatially referenced data set incorporating a database management system with graphic display.

1.5 As government and businesses deliver services electronically and enter into transactions based on more dynamic web-based presentations and exchanges of information, are they neglecting to capture adequate documentary evidence of the occurrence of these transactions?

- There are no transactions as such that occur through the use of the CC GIS. The archaeologists ask research questions, which the GIS Specialist provides the answers to in a hardcopy format.

1.6 Is the move to more dynamic and open-ended exchanges of information blurring the responsibilities and altering the legal liabilities of the participants in electronic transactions?

- This question does not apply to the archaeological context of this case study.

1.7 How do record creators traditionally determine the retention of their records and implement this determination in the context of each activity? How do record retention decisions and practices differ for individual and institutional creators? How has the use of digital technology affected their decisions and practices?

- There is no formal or systematic determination of record retention.
  - All versions/backups are retained for preservation.
  - Versions are determined on the basis of major changes or additions to the system.
  - Files are actively migrated to newer versions of software.
  - Data are burned onto CD-ROMs.

- No long-term preservation methods have been considered due to the opinion that future GIS technology will render the current data, analyses and results obsolete.