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

Domain 1 Research Questions

Case Study 06:
Cybercartographic Atlas of Antarctica

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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?

In relation to CS 06, documents traditionally created in the course of producing cartographic atlases primarily include maps, the design for their print presentations, and administrative records enabling the accomplishment of the publishing activity. The purposes of producing atlases are primarily for administration, education, and public use. The Cybercartographic Atlas of Antarctica (CAA) is developed in electronic form for online presentation, and it is defined by the CAA director Dr. Fraser Taylor as "the organization, presentation, analysis and communication of spatially referenced information on a wide variety of topics of interest and use to society in an interactive, dynamic, multimedia, multisensory and multidisciplinary format." To accomplish the activity of creating a cartographic atlas containing digital entities and operating in cyberspace, types of documents different from traditional ones need to be created, such as digital datasets, multimedia objects, and computer programming codes. The purposes of creating these digital entities remain unchanged as they are created for constructing an atlas; the purposes of constructing a Cybercartographic, however, have been extended to include, in addition to those traditional ones, facilitating the conduct of scientific activities and decision-making in both public and private sectors, due to the extended functions such as wider dissemination, faster access, and real-time data consultation from distributes/remote sources, which are powered by digital technologies.

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?

There is no information directly provided in the final report depicting the traditional process of document creation. The report, however, provides many reference sources for understanding the evolution of the development of the cartographic atlas, from analogue

format to digital format. In summary, the development has been advancing in many aspects that involve the employment of computer and communication technologies. The CAA project is designed with the latest technological developments in mind, which have changed the processes of creating documents in digital formats.[1] For example, the content creators in the CAA project have their own processes of creating contents for the real-time content assembling in their respective fields, which is an ongoing activity required to ensure the Atlas's constant collecting of spatial information on Antarctica. The document creation process has also been changed in the way by which the created documents are maintained and transmitted due to the use of digital technologies. If the traditional process of document creation in publishing an atlas can be said as a linear, straightforward, and a one-time job,[2] the creation of digital documents in CAA are multi-dimensional, dynamic, and non-stop.

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?

Since the looking for document elements and attributes requires careful and physical examination of documents at the individual document level, more information than the FR, such as complete samples of documents generated in the process of constructing an atlas, is needed to answer this question. As a result of the impossibility of identifying document elements and attributes, the functions of these elements and attributes can not be demonstrated, nor are the manifestations of authorship in the records. In the traditional environment of publishing atlas, the manifestation of authorship and the application of intellectual property rights depend on what maps and how they are designed for the publication.

The following information is copied from the FR, answering the second half of the question in a digital environment.

Regarding Intellectual Property Rights and Authorship:
Much of the data used in the creation of the CAA—a non commercial research product—can be used at no cost as part of the Antarctic Treaty System. The project also includes typical intellectual property issues such as license agreements, use rights to objects and data, and copyright. The CAA itself includes use caveats and disclaimers (e.g., it is intended for information, not navigation purposes). Professional competencies dictate a wide range of sound ethical practices related to content creation. The data are fully referenced in the CAA within modules, within the metadata or embedded within the digital objects. Some data are remotely accessed on the fly when a map is created. Access to these data sets is part of the Open Geospatial Data Consortium Standards (see Appendix L - Antarctic Digital Data Web Feature Server Development Notes, Appendix N - OpenGIS Reference Model in the final report) and formal agreements have been made with data providers to call this data (see Appendix O - How the Atlas Works in the final report).

[1] It is assumed that the process of creating documents of administration nature remains not fundamentally changed.
[2] This does not include the revision of the Atlas at a later stage.

Module content creators are identified when their content is discussed in numerous academic papers, presentations and reports and also on the Project's Communication Internet Site. See Appendix Q - List of Standards Adhered to on the Project.

The CAA itself bears the following attribution of responsibilities: The Cybercartographic Atlas of Antarctica, its technology, content, and theory is the responsibility of the Geomatics and Cartographic Research Centre. The Atlas is formally endorsed as a Scientific Committee on Antarctic Research (SCAR) project.

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 IP1 definition of record applies to all of the digital documents generated in the process of constructing the CAA, that is, these documents satisfy the five conditions of being considered as records implied by the definition: (1) fixed form, stable content, and affixed to a medium, (2) participating in an activity as a byproduct or instrument, (3) identified persons concurring in document creation, (4) archival bond, and (5) identifiable contexts. Since there is no direct access to the generated documents in question, the record components are identified through diplomatic analysis, which decomposes the definition of record into the fore-stated conditions. The information needed for the analysis comes from the final report.

The Atlas, however, does not satisfy the conditions of fixed form, stable content, participating in an activity as a byproduct or instrument, archival bond, and documentary context. The requirements for fixed form, archival bond and documentary context are extended to accommodate documents generated in experiential, dynamic, and interactive environment. Fixed form is extended to allow technologically bounded variations, archival bond and documentary context are extended for live system to be considered as potential records, that is, these two requirements can be satisfied at the time of the document being set aside. These extensions, however, do not change the definition of record in any fundamental ways.

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?

While the construction of the CAA is not government or business activities, it is designed to provide spatial information for a variety of purposes, such as facilitating decision-making, and it operates in a dynamic/interactive web environment employing the latest developments for electronic access to information. The method of providing information in such a dynamic and interactive fashion does possess new challenges in adequately capturing documentary

evidence of practical activities. These challenges require new policies and procedures as well as technological solutions to be established accordingly. This is the case for the CAA. Since the CAA is a live system and it has the ability to assemble information from various sources upon user requests, advices for users to save the information used for their purposes should be given up front. The CAA's technological strategy of employing as many as possible open sources is effective in this regard since users who need to save and view later the saved information can download the required applications from the website free of charge. It is still a challenge for the project, however, to develop effective strategies of preserving the system as a whole since the contents in the system are not stabilized.

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?

The CAA's disclaimers and caveats make it clear that the information it provides is for educational purpose mainly. In a general sense, the answer to this question can be yes, as the CAA example of users' responsibility of preserving the information used given in 1.5.

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 information available regarding the recordkeeping practices in traditional environment. Generally speaking, record retention decisions and practices for individual and institutional creators differ in the degree of control and systemization. Digital technologies should not affect record retentions in the sense that retention decisions are not made based on technologies. Technologies, however, will affect to a great degree how these retentions are implemented.