

Intellectual Property and IMPACT

Internet-based Mummy Picture Archive Communication Technology

IMPACT is an internet-based mummy radiology database that is populated by contributions of data from participating institutions, and is to be accessible to qualified scholars throughout the world. This database will enable, for the first time, truly comparative research in mummy studies. The heart of the database is a server where the data will reside, running the ClearCanvas ImageServer and Webstation PACS products (www.clearcanvas.ca). A PACS (Picture Archive Communication System) is a database software package that is dedicated to the management of radiographic images in DICOM format. The ClearCanvas product is a “thin client” system, where the data reside on the solely server and are not distributed to the user. Rather, the PACS has extensive functionality to allow the user to interact with the data and to examine x-rays, CT slices, make measurements, reformat image planes, and so on and to save the graphic output, leaving the primary data intact. Further, this system is designed to protect clinical patients’ data and has security features to prevent unauthorized access, further ensuring the integrity of the data.

A parallel, publicly accessible, web site (www.impactdb.uwo.ca) will contain general information about the project, contextual information about the mummies contained within the database, and links back to the contributing institutions.

Management of Intellectual Property

1) The principle that underlies this project is that data copyright resides with the originating institution. It is possible that the institution and the individual who led the individual x-ray/CT projects may share copyright; this will need to be clearly established on a case-by-case basis. The contributing institution will be responsible for ensuring that intellectual property rights are respected. The copyright holder and the University of Western Ontario will undertake an agreement that warrants and represents data ownership (copyright) and allows Western under a license agreement to host the data on the IMPACT server. In the event that ownership rights are contested, the contributing institution will be responsible for resolving the issue. Until such time as ownership is resolved, Western will suspend access to the contested data or remove the data from the IMPACT server, in whole or in part. In the near future, contributors may also request access restriction be placed on datasets, in whole or in part, with access provided on the approval of the contributor or the oversight committee.

2) The data residing on the IMPACT server will be managed by an oversight committee, composed by Andrew Nelson (University of Western Ontario), Jerome Cybulski (Canadian Museum of Civilization), Gerald Conlogue (Bioanthropology Research Institute at Quinnipiac University), and Randall Thompson (St. Luke’s Mid America Heart Institute), while contextual information for all datasets on the IMPACT server will

be openly accessible from the publicly accessible web site mentioned above. Researchers seeking access to primary data on the IMPACT server will apply to the steering committee, by outlining a clear scientific proposal that includes:

- a clear research question
- background information establishing their legitimacy as scholars,
- a complete list of the datasets that they wish to access (selected using the context database), and
- a timeline for the completion of the research.

The steering committee will assess the proposals and will either communicate with the originating institutions, or the originating institutions will empower the committee to act as an agent on their behalf (that will be determined at the point of crafting the original agreement between the copyright holder and Western). In the interest of transparency, Western will conduct reviews of the findings of the committee, to be made publicly available online from the IMPACT website or wiki.

3) Upon approval, the user will sign an agreement that outlines their rights and responsibilities at which time the steering committee will instruct the database manager to create an access account for the user.

- 3a) user rights – The user's account will give them access to the data outlined in their proposal. The account will be active for the time outlined in the proposal and will be deleted at the completion of the research. Requests for time extensions will be entertained by the committee.
- 3b) user responsibilities – The user will undertake to use the data in the ways outlined in their proposal. IMPACT and the originating institution(s) will be acknowledged in any reports or publications and copies of any reports or publications will be sent to IMPACT and the originating institution(s). IMPACT does not guarantee or represent that access or rights of use to any dataset will be provided or not withdrawn.

Benefits of IMPACT to the contributing institutions

Participation in IMPACT will provide substantial benefits to the originating institutions in the following areas of data management and exposure:

- **Legacy data and media** - X-ray, CT, and other data files have been collected over the course of the past century and reside on a variety of media. Significant data loss has occurred in that time, as a result of media degradation and media or format obsolescence. The IMPACT system incorporates specialized software to update data to current formats, and it will undertake commercially reasonable efforts to keep up with future data developments. The fact that the data reside on a server and that users access the data via the World Wide Web ensures that media formats are not an issue. IMPACT promotes the establishment of consistency in access, use, and application of a broad spectrum of datasets.
- **Storage** - X-ray and CT data files can be extremely large, and require specialized software and hardware to accommodate efficient access. The IMPACT system is designed with large amounts of data storage, efficient access from any computer with Internet access, and provides specialized online software for manipulation of imaging datasets. The fact that the data reside on a server and that users access the data via the World Wide Web means that institutional and end-user storage is not an issue.
- **Access** - By having their data on IMPACT, the originating institutions can greatly streamline researchers' requests for access to the data, reducing demands on the time of institution staff.
- **Intellectual property** - Currently, data sharing must take place by sending the actual data files to any potential researcher. Once sent out in this way the institution has no real control over the data. Through the intellectual property agreements, the access review process, and the account/password access control, the intellectual property of the originating institution is better protected in this system compared to any current system of data sharing.
- **Exposure** - The development of an Internet-accessible, large-scale mummy studies database contributes to the field's ability to perform meaningful, synthetic, population-based studies of mummification and the cultures that engaged in this practice. The wide exposure, and indeed the power, of a database of this nature serves as a rationale for new or continued application of radiological and other non-destructive technologies to the study of mummies in the future.