



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

ORGANIZATION:

University of California at Berkeley

PROJECT NAME:

Museum Informatics Project

Summary

To improve collections management and access to collections at the University of California, Berkeley, the Museum Informatics Project (MIP) deployed a business intelligence system from Business Objects. For more than a decade, MIP has refined its use of the system, creating custom management solutions for three diverse collections, the History of Art Department Visual Resources Collection, the Botanical Garden Plant Collection, and the Berkeley Language Center Collection. With Business Objects, curators and staff have improved operational efficiency, gained greater control of their holdings, and improved access to the collections.

Introductory Overview

Founded in 1870 and the flagship of California's Public University System, UC Berkeley is renowned for the size and quality of its libraries, research facilities, and museum collections. To provide the academic community with the greatest value from the collections, the Museum Informatics Project—a department of Information Systems and Technology at the University—launched a business intelligence initiative. The goal was to enable collection managers to improve collection tracking, provide immediate, direct and efficient access to the richness of their data by using ad hoc queries to their databases, and write their own reports without the time-consuming and expensive step of turning to MIP.

The project began in 1994. At that time, new business intelligence solutions were emerging, offering simpler access to multiple databases using natural language. After an in-depth evaluation of six packages, MIP opted for BusinessObjects from Business Objects, then a relatively new company, because the product installed easily and was robust, offered easy access to features, and made it easy to create reports with a minimal amount of help from technical support.

Over the years, MIP implemented business intelligence for three collections that are independent of the library system. The different implementations reveal the various ways collection managers can benefit from business intelligence, from improving access to saving time, to justifying staffing.

The History of Art Department Visual Resources Collection (VRC)

LOCATION:
*Berkeley, California,
United States*

YEAR:
2006

STATUS:
Laureate

CATEGORY:
Education and Academia

NOMINATING COMPANY:
Business Objects



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The History of Art Department collection currently includes approximately 380,000 slides, 280,000 photographs and a few hundred digital-only images of works of art from all over the world, dating from prehistoric times to the present. Prior to BusinessObjects, collection data was stored in a simple FoxPro database with limited reporting capabilities. Today, data is stored in a Sybase database and accessed using BusinessObjects.

Items are catalogued directly into the collections management system, called *seurat*, and digital images are linked to the catalog data. Today *seurat* includes almost 38,000 records on 19,000 works of art. The *seurat* database also contains 172,000 records uploaded from the old FoxPro database. The system manages orders placed by faculty to add new slides and photographs to the collection, tracks personnel authorized to access the collection, links to art history terminology authorities, connects courses and lectures to the specific images used by the faculty in teaching, provides information about the sources for collection images, tracks the conversion of records from the FoxPro format to the *seurat* database structures, and more.

Business Objects provides self-service reporting capabilities, and several staff members create reports, perform ad hoc queries, and refresh standard reports. The system allows staff to analyze information in an unlimited number of ways. They can see a list of faculty and graduate students with borrower privileges, check slide or photograph orders by multiple criteria, validate that all required data about a work of art has been entered into the database, and check the accuracy of the data entered by the staff. The system even generates an invoice when faculty members order duplicates of collection slides for their personal collections or purchase other supplies.

Staff members also generate a variety of other reports and print the drawer-front labels and interfile shelf-list cards used to identify the contents of slide cabinet drawers. Business Objects is also used to produce an annual productivity report to track the number of orders per year per staff member, how many orders were completed versus outstanding, and several other measures. The curator uses Business Objects reports to justify funding and for the productivity portion of staff performance reviews.

University of California Botanical Garden

The Botanical Garden's plant collection dates back to the 19th century, and the new SAGE (System for Accessing Garden Entries) database and collection management system, now includes 40,000 records of plants that have been in the garden over the years, 19,500 of which are alive. The new database system, along with Business Objects, enables staff to answer research questions much faster than with the previous DBASE system.

Staff use Business Objects to report on which plants are used for academic courses and research projects. The system tracks which plants are being propagated from existing stock and whether they are being propagated for sale, use in a course, or research. The system also tracks which plants in the garden have died, so the contents of each garden bed is kept up-to-date. Staff can quickly see which collectors have collected which plants and where the plants came from, along with the taxonomic and common names of each plant. The curator also tracks which plants have had material sent to the campus herbaria, a repository for dried plant material. Horticultural staff use BusinessObjects to inventory the sections of the garden for which each staff member is responsible. The curators use the system to answer researchers' questions about the living plants in the collection and to generate identification signs for newly planted specimens. A visitor can be given a report listing of requested plants with the garden beds in which they are located, making it easy for the visitor to find and examine those specimens. A variety of reports are distrib-



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uted to the University, the Jepson Herbaria, and the bio-collector's laboratory.

Business Objects can be used to report on holdings in both the Botanical Garden and the University and Jepson Herbaria even though the data for each collection is in separate databases. A researcher looking for a specific plant species can find living specimens from the garden, and dried plant material from the Herbaria, all in the same report.

Business Objects also helps the manager of the horticultural staff monitor staff activities and performance.

Berkeley Language Center Collection

The UC Berkeley Language Center (BLC) maintains a collection of linguistics books, historical recordings for researchers, and practice recordings for students learning a new language. BLC contains recordings of Native American languages with few or no living speakers, as well as other rare recordings. The center's entire collection is currently maintained in a Sybase database accessed by BusinessObjects. The BLC's current holdings include approximately 4,000 items, totaling 14,000 individual segments.

BusinessObjects is used to track acquisitions, cataloging, and, until recently, circulation of collection items. Reports are produced that track usage by series, language, project, individual, and department. The system also automatically prevents rare or fragile books and recordings from being checked out. Today, BLC is converting all physical recordings to digital recordings in order to make them available online. BusinessObjects is being used to track the conversion and will continue to be used to track the circulation of print items and the usage of non-digital media.

BLC uses BusinessObjects to produce reports on the use of BLC rooms by course, language, faculty member and department. The system also tracks how grant funds are used.

Benefits

University collections are a vital source of knowledge for researchers, students, and the community. Beyond the clear benefits to the various departments and their collections, the BusinessObjects implementation at UC Berkeley has tremendous potential to benefit both the academic community and the public. For example, the History of Art Department uses BusinessObjects to make images and catalog data about works of art mentioned in course lectures available to instructor and course websites. Students can then use course websites to study for exams instead of going to the library, where the physical space available for posting photographs used in course lectures is rapidly decreasing. MIP also plans to use Web Intelligence, part of the Business Objects business intelligence solution, to provide staff and researchers with access to reports and ad hoc queries using any computer with a standard web browser, whether on or off campus. This will enable the University to explore initiatives for making information available to researchers and students around the world, as well as to the public. MIP expects that the availability of WebIntelligence will encourage other collections to participate in the business intelligence initiative.

One would hope that other academic collections, museums and archives would be inspired by MIP and Berkeley's experience to start their own business intelligence initiatives.



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The Importance of Technology

Collections of original writings, artifacts, images, objects and archival data are fundamental to scholarly study. They provide basic data for a wide variety of fields. In many areas of research, collections are the only source of primary data. While university collections are vital sources of knowledge—and of pride for the universities—without an effective way to manage and query them, large collections are often underutilized. Parts of a collection can remain buried for years, and the larger a collection grows, the more difficult comprehensive access becomes. Technology, such as a Business Objects business intelligence solution, is critical to the long-term management of large collections and to providing access to these collections by larger and more geographically diverse segments of the population.

Originality

MIP was the first campus information systems technology department to concentrate on assisting campus collections with their computing needs by developing collection management systems tailored for the specific needs of each collection, by participating in technical standards organizations and by seeking out and prototyping new technology for use by those collections. The business intelligence project is a continuation of these efforts to assist multiple campus collections with their technology needs.

Recently the project was featured in an article in the Educause Quarterly magazine under the heading “Good Ideas”.

The Berkeley MIP implementation is one of the first known attempts to use business intelligence for collections management and remains a model for how other universities can improve management and provide greater access to their resources.

Success

The three business intelligence implementations have been successful on several levels. First, business intelligence has slashed the time required to create reports from hours or days to minutes or seconds. An annual productivity report in the History of Art Department, for example, used to take an entire week to compile manually, but is now completed in about two hours.

Business intelligence has also enabled both staff and researchers to ask questions that were impossible or impractical before. For example, when Botanical Garden staff became alarmed about Sudden Oak Death, they could immediately determine which species in the garden were susceptible. Prior to implementing business intelligence, accessing this information would have taken much longer, requiring a request to MIP or a lengthy manual process.

Staff also enjoy using their business intelligence systems, relying on them for multiple daily activities while always exploring new ways to save time and manage their collections. The collections managers and curators let MIP know that the business intelligence project has helped their efforts to maintain their collections.

“Business Objects allows us to look at the data we’ve entered in a way that the data entry screens do not allow. We can run ad-hoc reports on the fly. I do love having Business Objects around. All my staff uses it regularly.”



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Janice Eklund, Principal Museum Scientist

History of Art Visual Resource Collection

“Business Objects has given us so much functionality. What has been especially useful is that in addition to basic reports, Business Objects has given us the ability to track and improve employee performance and our management of the collections.”

Holly Forbes, Curator,

University of California Botanical Garden

The three participating collections adopted and embraced Business Objects very quickly. Collections used tutorials provided by Business Objects initially to familiarize themselves with the software. MIP spent a few additional hours with each collection providing more in depth training. Most users were then comfortable refreshing standard reports and beginning to create their own ad-hoc queries. As mentioned above, the head curator at the History of Art department began creating her own reports immediately after an hour spent going through the tutorial. She has continued to improve her skills with the software by modifying standard reports and developing ever more complex queries with only occasional assistance from MIP. Her staff were originally restricted to refreshing standard reports. However, once they became aware of the types of reports the head curator was producing they asked MIP to provide more training and are now regularly creating their own reports and queries.

Difficulty

At the time the project started, given the complex IT infrastructure at UC Berkeley and the diverse reporting needs of the various departments, there was no single obvious solution for improving collections management. Some of the challenges included multiple operating systems on multiple platforms, the need to access data from several sources, the need to produce complex reports using compound queries, and report format flexibility. It was also important that the solution require only minimal staff training, no knowledge of SQL or database structure, and minimal support from MIP. Cost was also a critical issue.

MIP reviewed 30 software packages, including general reporting solutions that offered more capabilities than were needed, and specific collections-management packages that could not be integrated with the existing databases. Some packages were available for only one platform, and others required too much technical knowledge by end users. Business intelligence solutions offered a better approach, but these solutions were relatively new and had not been used for collections management. In fact, in the beginning, limitations in the early Business Objects solutions slowed some aspects of the MIP deployment strategy; however, these limitations were eliminated over time.

As MIP is part of a public university, funding for projects can suffer when the state of California has budget problems. Over the last few years, funding for research initiatives, including research collections has been cut. Some collections would like to begin licensing business intelligence software, or would like to increase the number of licenses they have, but budget cuts have prevented them from pursuing these goals. MIP's funding has also been cut forcing the unit to pass on some of the technical support costs to the participating collections, when in-house technical support was previously provided free of charge.



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The budget cuts have also affected staffing. A single technical staff member is responsible for all the support required for the business intelligence project, including security, development and maintenance of the mapping from the database structures to the software so non-technical users can generate reports, troubleshooting, some report development, and communication with Business Objects. The business intelligence initiative is only one of the projects for which this staff member is responsible.