



Chapter I

USCInfo: A High Volume, Integrated Online Library Resources Automation Project

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EXECUTIVE SUMMARY

This case sets forth automation philosophies and systems development processes associated with the University of Southern California's "USCInfo",¹ an integrated retrieval software for accessing both the USC Library catalog and periodical indexes. Regarded at its implementation as being cutting edge in library automation, USCInfo's present size is 25 gigabytes of data, with searches numbering 3,800,000 annually. USCInfo is illustrative of "messy problems", that is, unstructured, complex, and multidimensional, which typically involve substantive organizational issues "soft" in nature. Problem conceptualization, decision making, and solution implementations in USCInfo often are both heuristic² and utilize satisficing³ decision-making processes. Such decision making deals with multiple, substantive constraints as well as conflict and ambiguity, that is, "equivocality".⁴ Systems development concepts embodied in this case include:

- *Systems life cycle evolution amidst technology change and obsolescence*
- *Systems design alternatives and end user characteristics*
- *Management of the systems life cycle maintenance phase*
- *Management of applications prototyping*

- *Small design team dynamics, champions*
- *Organizational impacts on the systems life cycle*
- *Rational and political organization processes*
- *Dual responsibility project management*

BACKGROUND

USC and Library System Overview

The University of Southern California, founded in 1880, is the oldest and largest private research university in the American West, approximately 14,000 undergraduates in a total enrollment numbering some 28,000. In the five year period preceding systems development of USCInfo, the USC library system comprised some 16 libraries, including: College Library (principle undergraduate library); Doheny Reference Center; several larger libraries — science, engineering, business, public administration and foreign affairs; and other main campus smaller libraries.

As a member of the Association of Research Libraries (ARL), there was continual pressure on resources to keep pace with a rising flood of materials, that is, books, journals, and ever increasingly, other non-traditional media-based materials. Separately, library administration sought to improve the quality of a collection that was historically underfunded. The USC Library budget is affected by the University's fiscal health, for example, static or downtrending enrollment growth directly impacts library budgets.

U.S. Library Automation

Libraries make a variety of finding tools available to their users, for example, directories, indexes, and abstracting services. Two that are ubiquitous across libraries are a library's catalog and periodical indexes. Research libraries are driven, in part, by the "information explosion", that is, the need to provide improved capabilities for locating both catalog and periodical source material in the face of geometrically increasing numbers and types of publications.

The decade of the 1980s witnessed a concomitant rate of growth in the number of libraries digitizing catalog availability as an Online Public Access Catalog (OPAC). Digitizing a library's catalog can be thought of as an item-specific type "inventory" problem. Each catalog item's particular characteristics (book, journal, government document, etc.) must be described to an established level of detail. Item "status" must be tracked and reported for inquiry purposes, for example, being cataloged, recalled, checked out, lost/stolen, and so forth. Additionally, patron data must be combined with item data.

The decade of the 1980s also witnessed increased digitization of periodical indexes by various methods such as dial-up time sharing services and CD-ROM-based periodical indexes. Prior to USCInfo, library patrons were offered dial-up periodical indexes search access. Such searches, performed at each library campus site, were librarian mediated, that is, required to be performed by a librarian professional. Costs were subsidized by USC, patrons paid a nominal fee, and access was limited. Library automation planning

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