

FUNCTIONAL REQUIREMENTS FOR EXHIBIT MANAGEMENT SYSTEMS

C. PLANNING ISSUES

1. OVERALL PLANNING: PROJECT MANAGEMENT SOFTWARE

The Management Analysis Group at the University of California, Berkeley conducted a excellent study on Project Management software. The author reviewed seven separate computer program samples through their generous loan: Harvard Total Project Manager; Time Line; Protracs; Pertmaster; Quiknet; Super Project and Super Project Plus.⁸⁰ PERT (Program Evaluation & Review Technique) project management software was developed by the U.S. Navy in the late 1950's with the aim of producing the Polaris missile system in record time. PERT is top-management and event-oriented ("milestones"). CPM (Critical Path Method), another type of project management software developed by DuPont at about the same time, is focused on working level detail and activities. Both PERT and CPM were developed to control time and cost in large complex projects, like construction, composed of a set of "one shot" tasks rather than continuing production or service delivery. They offer a network chart compared to Gantt (bar) charts or Line of Balance (LOB) planning methods. The network clearly shows interdependencies and problem areas not obvious in the other methods. A number of PC software products use both PERT and CPM techniques.

Project Management software might be of considerable use to a Director⁸¹ or a Curator in the planning and analysis of time and cost for one exhibit or several years worth of exhibits. An Exhibits Manager or Registrar could easily update changes as they evolve and produce rapid overall analysis to correct potential scheduling slips. The advantages seem to be chiefly for administrators because they clarify responsibilities, help in trouble-shooting, provide better scheduling, and control of departmental and subcontractor resources.

One of the major disadvantages, noted in the U.C. report, is that cost accounting software programs often don't work with project management software, requiring two sets of records: one

80. Ed Fennessy and Elena Minor, "A Proposed Large Scale Project Management System for University of California, Berkeley, Business and Administrative Services," December 1985.

81. Dennis Power, Director of the Santa Barbara Museum of Natural History, uses project management software for project management, timelines and resources allocation. Correspondence with the author, December 21, 1987.

for planning schedules and one for accounting. Another disadvantage is that producing complicated relational charts often takes large chunks of disk space and expensive printers. These charts are often plotted out by the design department system.

2. SPACE PLANNING: CADD, DRAWING AND DESKTOP PUBLISHING SOFTWARE

Computer-aided design and drafting systems (CADD) have helped engineers and architects for years. Are these systems practical for the designer in a museum?

Memory space and its attendant cost is the first consideration when buying CADD software. Disk size always depends on the application run on it. Word-processing generally takes a 20M-byte drive. Adding spreadsheets and simple databases to that system requires a 40M-byte drive. Full blown CADD applications often use over 100M-bytes.⁸² The designer will probably need his own system with a PC and a printer to produce blueprints. CADD files can be quite large, ranging from 15K bytes for simple drawings to over 100K for complex ones.⁸³

For an exhibit designer, CADD programs make drawing the gallery plan (exhibit blueprint) easier, especially during editing. Just as word processing simplifies revisions in writing, CADD programs help edit drawings, quickly and easily. CADD drawings allow designers to produce clear display plans and instructions for preparators and the construction team. CADD programs also give designers presentation graphic capabilities with multiple fonts, fill and hatching (shading and shading patterns), and text justification. These features are important in gallery text and labels, and producing drawings for brochures,

82. Preston Gralla, "Mass Storage: Making the Hard Choices," PC Week Supplement, Vol. 5, No. II, (March 15, 1988):S/6.

83. Joel N. Orr, "Upwardly Mobile CADD," PC Magazine (December, 1987): 93-135. Today, simplified CADD software sells for less than \$500 and the microcomputer hardware to make it operate, sells for under \$2,500. This is quite a change from systems that used to cost \$110,000 per workstation four years ago. PC Magazine tested 16 CADD software packages (all under \$500) and found that many of them could provide performance similar to AutoCAD, the standard \$3,000 package that has been purchased by 50 percent of all CADD users.

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catalogs and advertisement. To help in the installation process, the designer could send these drawings with a travelling exhibit.

In order to share CADD files between software packages, file standards have been created. There are two CADD file standards: DXF - Data Exchange Format and IGES - Initial Graphics Exchange Specification. Both are really ASCII files (American Standard Code for Information Interchange), the standard code for representing characters as binary numbers, used on most microcomputers. This is important when the designer wants to edit a CADD file with word processing software. Drawings can be saved and used in many ways with this software interchange capability. When files are in ASCII, drawings can also be given to different departments within the museum to add text for publication, advertisement and collection management tasks.

Computers enhance printing and publication functions and give many museums the ability to produce labels, gallery text, brochures, handouts, and catalogs more efficiently in-house. Due to disc space requirements, a design department should plan for several workstations or compatible computers if both CADD and drawing program software are desired. With CADD capability and drawing program software, the time needed to develop a concept and produce a finished product can be greatly reduced because revisions and duplications are easily made. A file takes little storage space and is readily available. Past projects can be modified for current needs. For tricky typographic detail, graphics service bureaus can print files for high-resolution products.⁸⁴ At present, gallery managers using computers typically make exhibit labels on plexi with a laserwriter printer. They also use a modem to transfer copy to a typesetter and to retrieve it quickly for vinyl type labels.⁸⁵

Another specialized type of auxiliary software that could be part of an exhibit system is a Desktop Publishing package. Economics is also at issue here. Can the publication, exhibits and education departments really save money by buying this tool?

84. Charles West, "Computer Graphics, Museum Exhibit-Design Departments Computerize," Museum News (August, 1988): 37-38.

85. N.A.M.E. Symposium, "Designers on Exhibition", Monterey Bay Aquarium, April 15, 1988, attended by the author. Although there was discussion about planning a workshop on CADD software, it was generally felt that designers in museums were interested, but not yet using CADD programs.

PC Magazine believes that these programs can do an attractive job with the combination of reasonably priced laser printers.⁸⁶

D. SITE ANALYSIS OF INSTALLED EXHIBIT SYSTEMS

In 1987, the author evaluated a number of software systems designed specifically to manage many of the tasks required for travelling exhibits. These systems are up and running and are producing successful data tracking. Three of these examples are considered below.

The first system was the Museum Object Stock Control microcomputer system (MOSC). Andrew Choi designed it for the Museum and Art Gallery Service for Yorkshire and Humberside in Leeds, England.⁸⁷ This service center is one of nine such government organizations that provide joint conservation, design, funding and advisory services to the provincial museums. The Leeds center serves eighty small museums. Each year they offer a program of eight or more travelling exhibits to member museums.

To maintain an up-to-date record of all the museum objects in the custody of the Leeds service, manual records were converted to the MOSC computer files. These files are divided into: Conservation, Transit, and Loan Exhibition categories. These categories correspond to tasks seen in the FAM Flow Chart and Marcy Reed's Data Model in Coordination, Loan, and Shipping. Manual input documents (In Receipt, In Receipt Detail, Internal Movement Docket, Ready Docket and Out Receipt) are transferred into computer records, held on floppy disks. The database is then immediately available for query. The system usually holds 2,000 records but has room for 64,000 records.

The system routinely produces a series of output documents or reports (Out Receipt Detail, Location Statement, Ready Statement and Archives) to check for lost items. A monthly stocklist and lading (cargo) list are also produced. Similar reports, like the Outgoing Release Agreement, the Archival Index

86. Cheryl J. Goldberg, "Desktop Publishing's Inexpensive Upstarts", PC Magazine (April 12, 1988): 92-149.

87. Michael Loynd, Director, Jeanne Smith, Registrar, and Andrew Choi, Accounts Clerk, Museum and Art Gallery Service for Yorkshire and Humberside, Leeds, England. Interview with the author, September 1986 and correspondence June 1987. MOSC system documentation, 1986.