ABSTRACT
              An outline for librarians who want to cooperatively.
plan to implement a shared circulation system, this guide employs a
method of planning based on policy analysis. The stages of problem
formulation, identification of objectives, perceptual activity,
system design, information gathering, and evaluation are outlined.
Although this guide contains some examples of the types of
information decision makers should consider, it does not provide
detailed information about every aspect of the planning process.
(FM)

A PLANNING PROCESS

FOR

AUTOMATED SHARED

CIRCULATION SYSTEMS

by

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INTRODUCTION

As the State Library of Ohio, Library Development Division's
Consultant for Systems and Network Development, I have re-
ceived many questions about planning for the automation of
library circulation. In response to these concerns, I have
formulated this guide as a useful checklist for librarians
who want to cooperatively plan to implement a shared circu-
lation system. This same outline also may be applied to
the individual library seeting.

A PLANNING PROCESS FOR AUTOMATED SHARED CIRCULATION SYSTEMS
employs a method of planning based on policy analysis.
Policy analysis is an approach to planning that helps de-
cision makers choose a course of action and implement that
choice. It does this by investigating decision problems,
searching out objectives and alternatives, and comparing
objectives and alternatives in light of their consequences
by using a model to bring the decision maker's judgement
and intuition to bear on the problems.

Although this guide contains some examples of the types of
information decision makers should consider, this checklist
does not contain detailed information about every aspect
of the planning process. I am available to assist Ohio li-
braries with their plans and work with directors and staffs
in developing regional networks.

Tony Yankus
Network Consultant
May, 1980

A PLANNING PROCESS FOR AUTOMATED SHARED CIRCULATION SYSTEMS

STEP ONE PREPARING FOR A REQUEST FOR PROPOSAL (RFP)

PROBLEM FORMULATION

#1. Determine the issues.

(a) Describe the present circulation system of each
     library that might participate in the automated
     system.

This description might include:

   a flow chart of procedures and processes involved in charging and discharging
      library materials;
   users records;
   catalog(s) and records for books, films, phonorecordings, magazines, tapes,
      vertical files and other materials circulated by the libraries;
   reserve book system;
   film booking procedures and policies;
   overdues, fines and collections;
   acquisition system, files and trends;
   personnel functions and workloads;
   bibliographic controls;
   circulation records;
   statistical records;
   special collections and services...

(b) Identify service problems inherent to the
     systems.

Some problems might be:

   staff time spent on clerical duties;
   costs of processing overdues;
   increases in circulation (forecasts);
   difficulties in providing for reciprocal borrowing;
   resource-sharing difficulties;
   inadequate bibliographic control of materials;
   cataloging and processing costs;
   other practices that impede or inhibit services rendered by staff to users.

(c) Formulate a list of service goals common to
     to the cluster of libraries by:

(i) Examining the history of interlibrary
cooperation among the participating
libraries.

(ii) Examining the current status of interlibrary
cooperation among the participating
libraries. Identify needs and service
problems. For example, union catalog
maintenance costs, problems with reciprocal
borrowing, interlibrary loan costs.

(iii) Forecasting future needs and service demands
for interlibrary cooperation among partici-
pating libraries. For example, shared
acquisition, delivery systems, growth of
interlibrary loans, increased costs of
materials, and so on.

(d) Identify alternatives that might improve services
and assist libraries in attaining local objectives
and the common goals.

Alternatives may be:

listing available automated library circulation systems available from ven-
dors;
developing an in-house system rather than one commercially produced;
modifying the existing circulation system to improve service and increase
efficiency;
examining autom tated library information networks as sources of contractural
services.

(e) Examine the practical considerations associated
with implementing each of the alternatives. These
include initial and long-term costs, physical
plant requirements, and personnel considerations.
Develop a five-year plan for financing, providing
system enhancement and expansion.

Basic financial considerations for automated systems include:

Hardware: the central processing unit, terminals, printers, and so
on.

Supplies: labels, computer paper, printer ribbons and fonts, and
others.

Site preparation: telephone lines, electrical outlets, environmental
control requirements.

Conversion: supplies plus personnel; magnetic tape, punched card, or
other "borrowed" means of converting the libraries'
records to machine-readable form.

Staff: Training time, job specification changes.

Telecommunications: telephone line charges from a local, regional or distant
computer to each local terminal.

Maintenance: hardware repair or replacement.

System Expansion: upgrading the system's capacity to meet new or increased
demands of collection growth, increased circulation
and additional library facilities and services.

(f) Coordinate your system planning with what's
    happening around you. Are the alternative
    automated systems able to interface (interact)
    with existing systems in the region and the
    State? Ask your regional library system, the
    State Library and regional planning commissions
    for assistance.

#2. Conceptualize a system.

(a) Summarize the problems identified in [#1(b)].

(b) Determine system boundaries.

    (i) Define the scope of the system. Decide
    what problems you have listed will be
    solved in a cost-effective manner by
    implementing an automated system. For
    example, interlibrary loan, acquisitions,
    shared-cataloging, and so on.

    (ii) Examine the hypothetical system's impact
    on other library administrative functions
    outside the scope of the system. Some
    examples include the budgets of the
    participating libraries, staffing patterns
    and requirements, local libraries' hours
    of operation, and so on.

IDENTIFICATION & CLARIFICATION OF OBJECTIVES

Write specific objectives (what is to be accomplished, in
    measurable terms, and when) to solve the problems
    based on the goals established for the automated
    system in [Problem Formulation, #1(c)].

PERCEPTUAL ACTIVITY

The planning process is not necessarily sequential. The
activities described in Step One are often accomplished simul-
taneously with those of Step Two, Three and Four. Planning is
a dynamic, interactive process. It is not as important to
accomplish each of these activities in the sequence described,
as it is to "go back" and look at what you, the planner are
doing. For example, at this point, or any other during this
process, go back and examine how the issue has been defined,
problems identified, and objectives formulated. Are you working
toward solving the correct problem? Does the evidence gathered
support your hypothetical solution? Do you have a viable
proposal for a system?

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| STEP TWO | SYSTEM DESIGN

Draw a blueprint and develop a program for the system required
to meet the libraries' common objectives.

#1. Describe software functions. These are the general functions
and instructions to be performed by the computer programs.

Some basic functions of an automated library circulation system include:

— Charging and renewing materials
— Reserving materials for users
— Discharging (checking-in) materials
— Reporting/restricting delinquent borrowers
— Recording fines and fine payments
— Identifying patrons and titles
— Producing reports and notices.

#2. Describe functional specifications. Detail the functions described
in (#1) above and include performance requirements.

Some functional specifications for the "discharge" or "check-in" function of
an automated library circulation system might include:

— The system must allow materials to be checked-in by an item identi-
fication number.
— When the item is not overdue, the circulation system should erase
the connection between the user and the item.
— When checked-in the item must immediately revert to "in the
library" status.
— When an item being "checked-in" is identified as overdue, the
system must provide two types of check-in:

(a) no fines record (the patron pays for the overdue item)

(b) fine recorded automatically (the item, dates due and returned
and amount must all automatically be recorded on the patron's
record).

— If the item is reserved for another user, the system must provide
an "on hold" signal; the item must then be automatically checked
out to the reserve shelf and a notice to the user generated automa-
tically. The reserve queue must also be automatically adjusted to
delete the user who receives the reserve notice and advance the
other users in the reserve queue.
— If an item is returned to a branch or agency in the library system
that belongs to another facility, the circulation system must auto-
matically check the item in from the patron and check it out to
the non-owning agency which discharged it.

#3. Include automated circulation system performance requirements.

Examples of performance requirements for the discharge specifications above
might include:

— Response time: Under 7 seconds, 90 percent fractile; average 4
4 seconds; maximum 7 seconds.
— Multi-branch environment with at least seven libraries on-line to
the system.
— If the item is not checked in at the owning branch or agency with-
in five days, following check-in at a non-owning branch or agency,
the branch or agency which orginally checked it in must be notified
automatically.

#4. Include numbers describing patron and material files.

For example, the system design might include minimum specifications for:

A title file of 350,000 items.
A copy file of 932,000 items.
A patron file of 150,000 records.

#5. Include hardware specifications, based on the number and size of the files, service locations and number of transactions at each location, and so on.

An example of a system's hardware configuration might look like:

One central processing unit to include:

two high-speed printers, disc control equipment, two disc drives (600 k bytes online storage), twelve disc packs.

Terminals:
four local display terminals for the main library;
ten remote display terminals for six branch libraries;
two portable terminals for two bookmobiles.

STEP THREE · GATHER INFORMATION

REQUEST FOR PROPOSAL (RFP)

#1. Learn more about the alternatives you identified in [step one, problem formulation, #1(d)] by requesting information, sending questionnaires, visiting libraries using on-line services of vendors and attending demonstrations of systems.

#2. Survey vendors, information processing services, and/or existing networks based on the checklist of specifications in your system model designed in step two.

STEP FOUR EVALUATION

COMPARISONS

#1. Examine the data collected from your RFP's. Look at the implications of the various alternatives. How well does each system fulfill the needs of your system model?

#2. Examine the short and long range costs of each alternative. Will the participating libraires be able fund operations of the system?