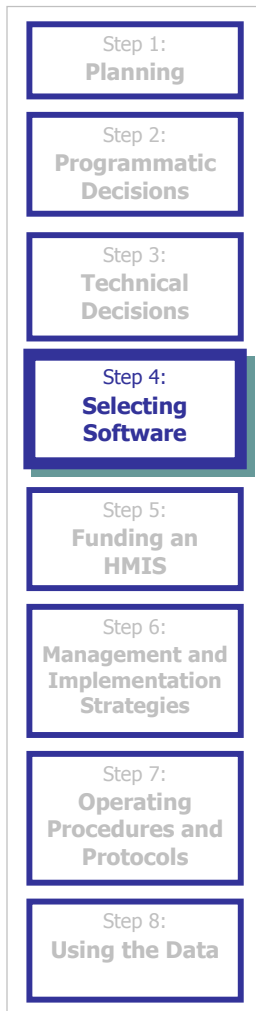


## Step Four: Selecting Software



### Software is a Tool, not a Goal

This step presents methods for selection of appropriate HMIS software products. First, communities need to develop criteria and gather information for the review process, next conduct a threshold review to screen out inappropriate products, and then carry out a thorough assessment of the finalists.

Despite the temptation to select and implement a data collection tool right away, communities choosing software must first determine local priorities for the system. Following the processes laid out earlier in this document, particularly planning (Step One) and designing the system (steps Two and Three), will provide the lens through which an appropriate product can be selected. Tools that work well for some communities may not be at all appropriate for others, as regional goals and implementation mechanisms may vary greatly. For example, one community may require interagency data sharing, while another maintains client confidentiality as the primary concern. Another jurisdiction may want an integrated I&R feature. Various software products offer different strengths and weaknesses. Once a community decides their preferences, an appropriate product can be selected based on the analysis presented here.

This step focuses on buying an existing product. Some communities choose to develop their own software. That process is not discussed at length here (see the community example at the end of Step Three for how HMIS software development may be approached).

### Stage One: Criteria Development and Information Gathering

Prior to beginning the selection process, a community should convene a review team. In many cases the team will be the technical workgroup that conducted the process in Steps Two and Three. The team should encompass representatives of

all stakeholder groups, including agencies that will use the software at program sites, the organization or government body that will function as central server, and policymakers who will be involved in using the resulting data. Consumers of homeless services should be included in this group because their feedback will be instrumental in determining the appropriateness of the tool and their involvement and acceptance will promote buy-in from program participants. In large communities, the software selection process can involve people who have not been part of the visioning and other processes. In small jurisdictions, the effort may involve tapping many of the same individuals. It is critical to involve future software users—front-line agency staff who will actually gather and input the data. Information technology professionals also play a key role in this process.

Local capacity to conduct technical reviews is essential. Although others in the community may not have experience with HMIS products, local organizations and governmental bodies have likely selected software for other purposes. They may have conducted requests for proposals (RFPs) and subsequent review processes to make these choices. Documents and measurement instruments developed for other purposes may be adaptable to HMIS selection. These organizations may also be a good place to identify

technology advisors to assist with technical reviews if system administration staff have not yet been hired. This resource will ensure that communities do not rely too heavily on vendor presentations to gain understanding of software function.

### Criteria development

Communities must determine their priorities for software tools. Based upon the planning and visioning decisions made earlier in the process, these priorities will enable community members to narrow the potential product list to those that meet local requirements. For example, communities that decide to include I&R as part of their system will limit their choices to products that offer a resource database component. Two levels of criteria can be developed.

- ◆ Threshold criteria are the minimal requirements for review. For example, if a community requires that data be hosted by the developer, products offered by vendors that do not provide this service cannot be considered. In many cases, threshold criteria will, at a minimum, include products currently in use by other communities (as opposed to proposals to develop a software product or tools ready for beta testing), tools designed for use by homeless organizations (this criteria may not be necessary for communities that choose to include other types of services), and software designed for large-scale implementation by multiple organizations (although small jurisdictions with a limited number of providers may be able to use products designed for single organizations).

A more detailed list of threshold criteria could include:

- User authentication level security (see Step Three for further discussion of this issue).
  - Collection of all APR-related client-level data using a unique client identifier (see Steps Two and Eight).
  - Ability to aggregate data across multiple agencies and programs to create an unduplicated count (see Steps Two and Eight).
  - Case management functions to capture data over time (see Concepts and Components).
  - Ability to customize the software and add data elements (see Step Two).
  - Capacity to provide user training and live customer support.
- ◆ Indepth criteria are developed after the initial list of potential products has been narrowed to those that meet the threshold criteria. This second level of assessment, discussed under stage two later in this step, will measure those community needs that are more specific and, in some cases, subjective. These could include user-friendliness; information sharing architecture; privacy protections; function; reporting capabilities, including the HUD APR and other national funder requirements; capacity for customization; real-time data access; database robustness; personnel requirements, including local and server skill level; hardware requirements; quality and availability of support; ease of installation; vendor qualifications; and cost. At both the threshold and in-depth levels, communities should consider the extent to which the software will forward the overall community HMIS goals.

### Designing the decisionmaking process

The workgroup should come to some agreements before beginning to make software decisions. Once the process of determining how decisions will be made is clear, the group should settle on a formal, approved list of threshold and indepth selection criteria. The indepth criteria should be ranked according to priority. The review process should also be clearly laid out and agreed upon, including selection steps, timelines, and documentation plans.

At this stage, before soliciting information from vendors, it is a good idea to make sure that the local CoC governing board approves the criteria and selection process. This legitimacy can protect participants later (for example, from vendor criticism and/or a vocal minority who prefer a different system). Although many team members may have personal knowledge of particular products, the group should make a commitment to openness in the process as well as to following the agreed upon structure. Software reviews can produce surprising results. A product a community raves about may not work at all for another community.

Communities in which the purchase will be made by a government organization need to be aware of any legal constraints and purchasing requirements. For example, State, city, or county agencies may be required to conduct public bidding processes, issue an RFP, give preference to local or minority businesses, or follow other relevant mandates.

Communities required to conduct an RFP need to develop a scoring instrument that quickly eliminates unqualified responses to trim the list to those products that meet the criteria. Others may be able to follow a more intuitive process to hone the overall list. However, it is beneficial for all communities to develop some sort of questionnaire for vendors. This type of process provides an opportunity for vendors to play on an even field and, if it includes the community requirements, can keep developers from applying even though they know that their product does not fit community needs. See the supporting materials section at the end of this step for reference to a sample RFP.

#### **Contracting: A Logistical Note**

During the planning process, as the community determines the most appropriate governing structure and system administration entity, workgroups should consider contracting logistics. One legal entity must act as the central administrator of the project for purchasing, hiring, and fiscal purposes. This legal entity must have the authority to execute grant agreements with funders, employment agreements with project staff, and contracts with the various vendors and contractors, including the software developer. This entity will also need to execute the formal policies adopted by the governing board, including agency-system agreements with each participating program site (see Step Seven). Prior to starting the implementation process, communities should become familiar with any purchasing processes required by project funding sources, such as bidding, public notices, and/or formal RFPs. Additionally, depending on the choice of the entity, legal requirements for contracting, hiring, timelines, and liability may vary.

#### Information gathering

Once agreement has been reached around the relevant screening criteria, communities need to develop a list of potential software products. Resources are available to assist with this process on the HUD HMIS Web site, including *Homeless Management Information Systems: An In-Depth Look* (January 2001). This document includes a list of the known HMIS software products. This inventory may not be exhaustive because the development and enhancement of HMIS is constant, but it does include those systems with established usage in jurisdictions across the country. The report also reviews a selection of those products. Although a great deal of detail is provided on each of the selected products, communities should engage in their own review processes. The guide can be used to narrow the list of potential products according to the threshold criteria discussed above but should not replace indepth local review processes designed to determine the appropriateness of particular tools for meeting specific community needs.

To conduct a thorough review, communities should gather the following information from relevant vendors:

- ◆ Written marketing materials, including pricing and, where relevant, questionnaire responses.
- ◆ Access to a demonstration Web site or program disk.
- ◆ References.

## **Stage Two: Threshold Review**

Using the materials gathered in the first stage, team members should compare the threshold evaluation requirements with the vendor materials to develop a short list of software products that meet the threshold criteria. Reviewing this information as well as viewing the product itself should allow team members to gain a basic understanding of function, architecture, reporting capabilities, security, hardware requirements, cost structure, and available support for each vendor. This initial review can also identify missing information that needs to be collected about those products to be considered in the final product review.

## **Stage Three: Finalist Product Review**

Once the list of potential products has been narrowed to a few that meet the community's threshold criteria, the workgroup should conduct a thorough review of the remaining tools. The review process should employ multiple methods to comprehensively evaluate each of the products in a standardized manner on a range of indepth criteria. By involving stakeholders at all levels and gathering information from a variety of sources, the process will enable local decision makers to make informed choices based on a detailed assessment of the strengths and weaknesses of the various products.

To ensure the objectivity of the process, localities will have to focus on their priorities once the review process is complete. For example, one product may be very user friendly but have poor security features. If a community has decided that confidentiality is the top priority, it may need to sacrifice user friendliness—a lesser priority—by eliminating that product from consideration. The review process should include technical assessment, user testing, vendor and user site visits, and cost analysis.

Before embarking on the reviews, team members should be aware that most software products must be customized to meet local needs. Particularly in large areas with diverse needs, there will likely be data relevant to local planning that are not captured in the existing product. Once a selection has been made, communities can work with vendors to customize the product appropriately.

### Technical assessment

The technical assessment of software products should analyze information sharing architecture, privacy protections, database robustness, security features, data elements, capacity for customization, and reporting capabilities. The technical product analysis should be conducted by technical staff (MIS/IT) by installing and testing each product locally. The MIS/IT professionals will have questions that cannot be answered by reviewing the information provided by vendors. Consequently, they will need extensive discussions with the developers to gather responses to particular inquiries. It is also helpful if the MIS/IT reviewers develop an objective technical evaluation tool based on the parameters recorded in the community's system design requirements document (described in Step Three).

The assessment can judge appropriateness of fit based on the software's hardware, personnel, installation, and implementation requirements, including local and server skill level. Reviewers should also plan to conduct tests designed to review the systems' robustness and to determine stability, performance, and scalability of the various products. When reviewing security, team members should assess those features that limit user access, rights to data, and ability to share records across programs and agencies. (See Step Three for a fuller discussion of this issue.)

The data elements review should determine the specificity and exclusivity with which elements and response categories are defined. For example, reviewers can examine income data fields to see whether the software collects transactional data in appropriate data formats. When reviewing data elements, it is important to keep in mind that most vendors and, in some cases, users can add data elements simply (see Step Two for a more detailed discussion of minimum data standards). Communities should determine whether most of the elements they foresee collecting are included and the costs and processes for supplementing the existing variables with others selected by local stakeholders. Reporting capabilities can be assessed by entering data and testing standard report output of the information.

### User testing

Local, onsite testing by end users and potential system administrators is critical to the review process. User testing serves as an ideal means through which case managers, direct service providers, and homeless program consumers can gain an understanding of the specific software application. If the community selects a product that does not work well for providers and consumers, implementation problems will likely result.

To conduct this testing, communities can set up a user lab, installing each of the products selected for in-depth review on computers<sup>6</sup>. In the lab, local stakeholders can try the software. Case managers, direct service providers, consumers, program directors, and staff members from the organization that will coordinate the process and function as the central server should use and review each of the systems.

Lab users should be given sufficient time to explore each product, enter dummy data, and generate reports. MIS/IT staff should also use this opportunity to review ease of installation, including documentation and support. Lab users should be asked to complete a questionnaire rating each of the products according to local indepth criteria.

A sample questionnaire is referenced at the end of this step and included in appendix D. This sample instrument captures information in three areas—data entry, usefulness, and output. For purposes of the tool, *data entry* is defined as ease of entry and navigation, logical and consistent flow, and appropriate entry time. *Usefulness* covered appropriateness of questions and available responses, and accessibility. *Output* considered reporting capabilities, usable format, and efficient location of information. Responses can then be analyzed to obtain scores for each category, which can be computed by averaging each of the category results. Reviewers could choose to set a minimum required score in each category—products below that number would not be considered.

Users can also be invited to participate in discussion groups. During these sessions, participants can provide valuable feedback about their impressions of each of the systems—its assets and drawbacks—and

---

<sup>6</sup> In communities planning a client/server system, it is usually not feasible to actually set up a server. In these cases, the lab is not able to replicate actual client/server communication process.

their suggestions for the format of the new system. User testing will provide a wealth of information on overall product function.

### Meeting with vendors and users

Another stage of the review process involves meeting with vendors and visiting sites where the products are currently being used. Reviewers should plan to meet with product developers, central server staff, end users, and local consumers/peer advocates for each of the final software packages. Vendor meetings will provide team members with an opportunity to learn about the development history and goals of the product, staff communication style, and customer approach. With this approach, the workgroup can also pose technical questions and concerns about function directly to the developers. Finalist vendors can be asked to travel to the community to save on review costs.

Site visits can be used to test the products in process, review system speeds, and gather information on consumer satisfaction, functionality, and the quality and availability of technical support. Again, this part of the review is a good place to include consumers, who bring a unique lens to the assessment process. The review team should plan to visit at least one site for each of the products. When cost hinders more extensive site visits, visits can be replaced with indepth phone interviews with other users. Reviewers should employ a common site visit instrument (see sample tool in appendix E) to evaluate a community's experience with the product.

During user site visits, reviewers should attempt to talk with people who represent a range of user roles, including case managers, central server staff, agency heads, and consumers. They should observe the software in use at service program sites of different sizes and technical configurations, review and measure the speed of the system (how quickly or slowly it responds), watch a client intake, and be given the opportunity to enter some data themselves. Through this process, the review team will gain information on the actual workings of the product in action. Local stakeholders can provide data on their implementation and operational processes as well as their level of satisfaction with the product and vendor. Reviewer questions for case managers and central server staff should focus on:

- ◆ Implementation processes, including:
  - Planned and achieved benefits to stakeholders.
  - Financial and human resource requirements.
  - Training.
- ◆ Structure, including:
  - System configuration.
  - Interface with other management information systems.
  - Security.
- ◆ Product satisfaction, including:
  - Quality and availability of technical support and updates;
  - Reliability.
- ◆ Operations, including:
  - Function.
  - Customization.
  - Reporting.

Difficulties often arise during actual implementation. Products with which communities experienced poor implementation processes should not necessarily be eliminated from consideration. Instead, reviewers

should ask sites about the difficulties they experienced and assess how the vendor responded to the community's challenges and how user feedback was incorporated into product updates. That information will demonstrate the vendor's commitment and responsiveness to users. Good products are those that have been regularly updated on the basis of user feedback.

### Cost analysis

A full discussion of the costs associated with implementing and operating an HMIS is included in Step Five: Funding an HMIS. This step focuses on software costs, which represent just a portion of the overall expenses involved in this type of undertaking.

To compare costs across more than one product, workgroups must gather standardized information. Appendix F of this guide contains a tool requesting one-time fixed costs, one-time variable costs, and annual variable costs across a number of expense categories. Vendors should be asked to provide this information for relevant expenses, including site and server licenses; hardware; hosting fees; support and maintenance; and training. This information can then be analyzed according to local needs. To determine actual costs, communities can use the information gathered during the assessment of required infrastructure (Step Three), including the actual number of personal computers, sites, and concurrent users.

With this information, the community can compute and compare cost estimates for various time periods. Comparing projections for the first 12-month period with the second can be helpful because so many costs are initial one-time expenses. In addition, rates for customization, training, and technical support can be compared across products. Since some costs depend on local choices, communities may want to request that vendors price options for various structural models, such as data hosting and service provider agency training. With this information, communities can determine the cost effectiveness of contracting with the vendor for services, as compared to hiring staff. (System management options are described in more detail in Step Six.) Results of the cost analysis can help communities choose from among similar products. In some cases, locales may find that they need to trade cost for system robustness. Often, products built with advanced technology are more expensive than simpler tools that may not be as efficient at handling large amounts of data.

When making these comparisons, workgroups should use the cost data as estimates. Vendor pricing is continually in flux, and most vendors report that they negotiate fees with communities based on local needs. The purpose of the cost comparison is to begin to gain an understanding of the range of software expenses and to assess these across various products. After the community has made a software choice, negotiation can begin and actual expenses can be determined. For example, many communities will have considerable customization and/or conversion costs, but the actual figures can be determined only after extensive needs assessment and negotiation. To go through this process with more than one vendor is not prudent. However, communities should negotiate these costs before entering into a contract.

### Final product selection

Based on the results of the indepth review process and following the prescribed decisionmaking structure, team members can recommend a product that best meets community needs. In most cases, the larger planning group must approve this decision. Group members then need to quickly inform as many stakeholders as possible. Inevitably, there will be community members who disagree with the selection. The best protection against criticism is a thorough, objective, inclusive, and well-documented review process.

When the selection process is complete, community members can begin to negotiate a contract with the selected vendor. Data gathered during the review process should inform these discussions. Any final decisions about community requirements will be made as the details are worked out. Concurrently, the community can begin to work with the vendor to prepare for the next steps—funding and implementation.

## Supporting Materials

- ◆ See the appendices for the following documents:
  - Sample Lab User Questionnaire (appendix D).
  - Sample Site Visit Instrument (appendix E).
  - Sample Cost Comparison Form (appendix F).
  
- ◆ *Homeless Management Information Systems: An In-Depth Look*, Center for Social Policy, McCormack Institute, University of Massachusetts-Boston (January, 2001). This report is currently being updated. It will be available on the Web site at a later date. The January 2001 version is available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.
  
- ◆ A sample RFP can be found at [www.nhsdc.org](http://www.nhsdc.org).
  
- ◆ *Homeless Management Information Systems (HMIS) Cost Estimation Guidelines: Cost Framework and Submission Recommendations*, Center for Social Policy, McCormack Institute, University of Massachusetts Boston/Aspen Systems, Inc. (January, 2002). This document provides detailed information on technical cost categories. Available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.