Case Study: The NIST Research Library's Experience Using Focus Groups in Strategic Planning

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Demonstrating value of library services has never been more vital. Inflationary cost increases and budget restrictions are common in the library world today, as are the rise of new information resources and the feverish pace of development of new knowledge tools. Dwindling funds and escalating needs make it more important than ever for libraries to be able to measure and validate their worth. To demonstrate value to the community or organization, libraries often use surveys and usage counts to gather information. Strategic decisions made by library managers are frequently based on these quantitative data, in the belief by managers that these reveal the best interests of users. Determination of users' interests may be based, accurately or otherwise, on librarians' impressions and prior observations of customers.[1]

The National Institute of Standards and Technology (NIST) Research Library's strategic planning process employs a very user-focused approach. The strategic plan receives fine tuning annually based on the Baldrige Principles, which the institution endorses.[2] To reach and maintain its goal as a continuously improving organization, the NIST Research Library performs frequent self-assessments. In 1998 it conducted a print-based user survey to measure satisfaction with the collection. Then, in 2001, the Research Library carried out a comprehensive digital survey that assessed use and satisfaction with its resources. Also in 2001–02, it carried out a benchmark survey to measure how it compared with seven peer institutions and to identify some best practices. In 2002 and in 2005, the Research Library performed organization-wide surveys to identify NIST core journals critical to work being done by researchers at NIST. A follow-up to the digital survey is planned for 2007.

A significant finding of the 2001–02 use and satisfaction survey was that the collection needed improvement in areas of emerging NIST research thrusts. In response, the Research Library stepped up the acquisition of materials in three newly defined, high-priority areas for NIST—nanotechnology, biosystems and health, and homeland security—and created a number of digital resources in these areas as well. Over the next three years, organizational emphasis on

these research areas grew, and in 2005 Research Library management decided to reevaluate and explore in greater detail user satisfaction with these resources.

To learn directly from these NIST researchers in the areas of nanotechnology, biosystems and health, and homeland security about their information needs, management approved a series of focus groups. A qualitative research technique developed in the 1930s by social scientists, the focus group has been adopted by libraries, especially over the last decade, as a valid way to judge customer satisfaction with resources and services.[3] Focus groups have proven themselves to be very useful for research about the information needs of specific populations. They can be more useful than questionnaires to collect in-depth responses. Their ability to provide speedy feedback on various issues makes them especially handy for analyzing customer needs.[4] In addition to being used in policy-making research, the focus group technique has also been valuable in obtaining participants' interpretations of the assessment process and its results.[5] Today, library focus groups are being more widely used to collect users' opinions about using and locating information. For these reasons, this method was selected for soliciting user perceptions about the library, and also because the users of the NIST Research Library have some unique demographics and preferences that made focus groups ideal for soliciting information on their needs.

The NIST Research Library

An agency of the Department of Commerce, NIST's mission is to "develop and promote measurement, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life."[6] NIST's staff of scientists, researchers, and support staff in Gaithersburg, Maryland, and Boulder, Colorado, work to support manufacturing and industry by advancing the nation's technology infrastructure. One of three groups in the Information Services Division (ISD), the NIST research library works hand in hand with Electronic Information and Publications and the NIST Museum. It has a collection of approximately 300,000 volumes and 1,300 journal subscriptions.

ISD supports the research activities of the NIST community through a program of knowledge management that

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includes collecting, organizing, and delivering information resources to enable scientific discovery as well as facilitating the transfer of the results of NIST research to U.S. industry, other government agencies, academia, and the public. It is currently involved in developing internal and external knowledge repositories of NIST technical communications. Central to that support, the Research Library primarily serves researchers of the Maryland facility's laboratories, which encompass a broad range of scientific and engineering program areas such as physics, chemistry, materials science, electronics, metrology, information technology, manufacturing, and fire safety research. Library laboratory liaisons interface between members of each laboratory unit and the library.

ISD's liaison program was launched in 1997 to help meet the information needs of NIST researchers in the various program areas. The program initially centered on traditional liaison activities such as in-depth research, collection development, and training. Recently the liaisons have developed additional ways to extend their outreach, and they now offer such services as analyses of publications and development of publication strategies for NIST work units to increase the reach of their published research results.[7] The liaisons function as a team, meeting regularly and collaborating to extend their range of services.

The user community at NIST is comprised of scientists and engineers. A significant body of work exists addressing the commonalities and distinctions in the information seeking and usage patterns of these user groups. Both groups require large amounts of information, although how they use it may differ in slight but essential ways. For example, Pinelli asserts that scientists use information to understand their world and their particular research concerns; this information subsequently produces new information. Engineers, however, may use information to create something as a product that is substantially different.[8] Leckie, Pettigrew, and Sylvain determined that, for engineers, oral communication is the predominant information source; followed by a reliance on personal files, knowledge, and experience.[9]

The impact of information technology and the proliferation of Web-based resources have also had an impact on the information behavior patterns for these user segments. Accessibility of electronic materials continues to be a strong arbiter of both the adoption of a new service and the subsequent use thereof.[10] Within an industrial environment, engineers and research scientists have been found to use a range of sources that includes colleagues, supervisors, and professional contacts in balance with other easily accessible but more formal sources such as journals, Web sites, or conference proceedings.[11] Other studies have identified that scientists and engineers value personal contacts as their most important information source. In fact, "for internal and external information alike, the engineers seem somewhat biased toward getting information without deliberately searching for it."[12]

Within the NIST user community, the distinction between scientist and engineer is becoming quite blurred. The selection of the three newly defined, high-priority areas for NIST create many opportunities for interdisciplinary cross-pollination in the research process. NIST's mission to develop and promote standards and measurements is very application-specific. As a result, NIST research staff function in a manner more typical of engineers than of scientists. Furthermore, nanotechnology, biosystems and health, and homeland security are, by very definition, technology-based applied science fields. It is expected that NIST users' information seeking patterns will be nominally consistent with those previously identified.

Planning for the Focus Groups

In the fall of 2004, a team of two library laboratory liaisons began planning the focus group assessment. Since a separate digital survey was already underway to identify core journals across the organization, they decided to hold the focus group sessions in the spring of 2005, after the completion of that survey. The timing also fit well with the strategic planning cycle, which is based on a fiscal year that runs from October 1 to September 30, by providing adequate time for final recommendations to be made to the management team and to impact strategic planning activities for the following fiscal year.

The use of a professional moderator has sometimes been recommended in the literature. However, it was decided that one of the team members, who had some previous experience in moderating focus groups, would moderate these to provide more direct, face-to-face time with users and cut down on lead time and expense. The focus group team decided to develop eight questions, to hold four sessions with up to eight participants each, and to plan sessions that would last from sixty to ninety minutes.

The team defined its major objectives: (1) evaluate the perceptions of the collection as pertains to the needs of researchers in three high-priority areas, and (2) determine the information needs for researchers in these areas. The focus group team identified potential participants through a number of outreach activities. The Research Library Advisory Board (ReLAB), upper- and lower-level NIST managers, and members of multidisciplinary committees responsible for organizing and overseeing activities in the three high-priority areas were contacted in particular.[15] Several of the managers opted to participate themselves; in other cases they nominated others to attend on their behalf.[16] Of these, first-line supervisors (group leaders), second-line supervisors (division chiefs), and upper-echelon technical managers were included. Typical of the NIST organization, nearly all group leaders and divisions chiefs are also major project leaders in their own right. While they may have additional administrative and supervisory responsibilities, they also participate directly in research activities. As a result, their usage pat-

terns are roughly comparable with those bench scientists considered to be front-line library users. Finally, the focus group team also attended information-sharing meetings and presentations in two of the areas, compiled a list, and invited all researchers to participate in the focus group discussions. Of fifty-three potential participants, twenty-nine volunteered. The composition of these focus groups is represented in figures 1 and 2.

Using the results from the 2001 survey as a basis, the team worked with six library liaisons, ReLAB, and the ISD management team to develop questions. To allow for in-depth discussion, they planned a narrow focus of questions and framed them to gather data that might be connected to and compared with the previous survey. Data were sought on the following:

- use and value of information resources and services in the new areas;
- comprehensiveness of the collection in these areas;
- strengths of the collection in the new areas;
- satisfaction with having information needs met in the new areas; and
- distinction of work habits and information needs in the new areas.

Eight "how," "what," and "which" questions were developed to encourage participants to talk, and were arranged in sequence from broad to specific (see appendix). Questions ended with two "cooling down" questions in which participants were asked to bring up the single most important thing on their minds.[17]

Four discussion sessions were held over a three-week period in May and June 2005. The twenty-nine volunteers attended in groups of three to eight participants. In addition to the moderator, another team member recorded comments on a large whiteboard in the front of the room to use for later analysis. (This whiteboard method was felt to be more conducive to open discussion for recording comments than audio taping.) A third team member assisted as an observer and took care of any logistics during the sessions, including documenting a seating chart for each session so that impressions and memories could be preserved during the debriefing period that immediately followed each session.

The moderator created a standard opening script in which she introduced staff members, explained everyone's roles, and outlined the anticipated activities for each group participant.[18] This was a very important part of the session, as it not only put participants at ease by explaining how the session would run, but it also emphasized that the focus group team was interested in seeking opinions and not in building consensus, thus empowering individuals to speak out. The set of eight questions was used as the basis for the conversations, and the team maintained the ninety-minute time limit for each discussion. The group discussions took place in a small, comfortable conference
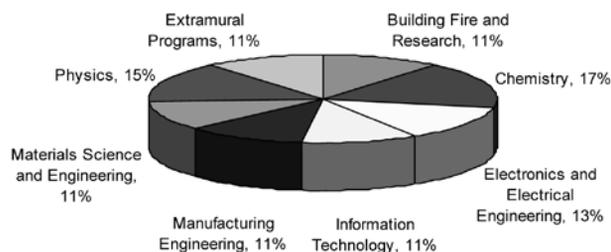

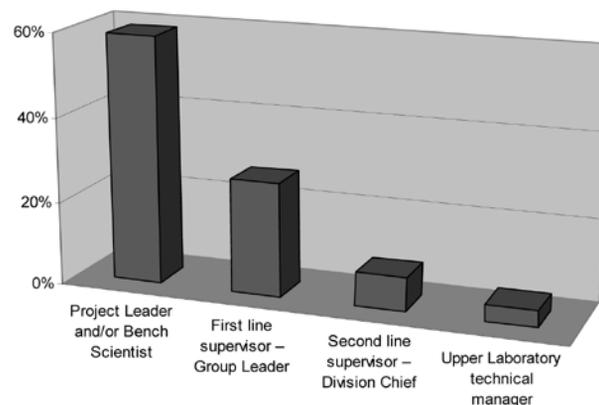**Figure 1.** Focus Group Composition—Disciplines

Figure 2. Focus Group Composition—Roles

room with participants seated at a U-shaped table facing the moderator.

Throughout each session the team note-taker carefully recorded remarks made by participants and identified them with representatives of one of the high-priority areas.[19] Immediately following each session the two team members and the ad hoc volunteer member debriefed and coded the remarks into eight related thematic elements. They then transcribed both the notes collected during the sessions and the debriefing data/themes into an electronic format.

The Findings

The focus group participants commented widely beyond addressing their satisfaction with resources in their specialized areas. The team discovered that the defined "high-priority research areas" were much more interdisciplinary than originally thought. For example, the team discovered that nanotechnology research at NIST encompasses a very broad array of projects, ranging from large multidisciplinary programs to much smaller, subject-specific tasks. Researchers characterized even those small and contained research projects as enabling technologies for broader applications, which qualifies as nanotechnology research within NIST. Scientists involved in these small projects subsequently have need for many kinds of materials, including resources from broader fields.

This finding had significant repercussions: scientists working in the high-priority research areas used a broader array of resources than was expected. Many of these were known to be heavily used by NIST research staff involved in more mainstream research areas. As a result, it became readily apparent to library staff that high-priority resources encompassed a much broader collection and needs than previously believed, including a sizable set of journals, conference proceedings, and Web sites. This further implied that the data collected from the focus group participants could be extrapolated as representative of views for a larger NIST user population. The data collected from these users also echoed usage patterns for engineers as previously identified. In the area of knowledge management, for example, focus group participants commented on and identified several new services as highly desirable for the user population.

It is apparent that the nature of the research work at NIST has become increasingly multidisciplinary. Focus group participants felt that many active NIST research projects could potentially relate to their own research areas. Many of these efforts may be conducted in other organizational units where the researchers might not have the chance to meet and exchange ideas. In addition, these researchers stated that they feel more compartmentalized by the growing demands of their research projects. Thus, they welcomed opportunities to meet and interact with other NIST researchers, particularly those working in related or complementary areas. The focus group participants indicated that they relied on the Research Library staff to help them find each other. This need for identifying and locating other scientists as "personal data sources" is consistent with information use behaviors of engineers.[20]

Training courses and materials were another area where users expressed a great deal of interest. The focus group participants wanted more access to online training materials offering instruction about how to accomplish specific tasks or purposes; for example, identifying grant or funding information. To assist with this, they requested tutorial-type materials to guide them through the basics of locating such information. In addition, the focus group attendees suggested courses, facilitated by Research Library information professionals, which would allow them to exchange ideas about search techniques and favorite resources with their counterparts within NIST. This is of particular interest because previous customer assessments, such as the 2001 survey, did not indicate a strong desire for additional training resources. As a result, the strategic emphasis for ISD management was on building relationships with lab and research personnel through expansion of the Lab Liaison program.

The request for additional training resources and materials was an unexpected finding. The customer survey of 2001 highlighted the need for ISD to step up efforts in marketing resources, particularly the collection of electronic databases, which require a substantial budgetary investment. As a result, the division provided more marketing and outreach activities designed to highlight these resources and demonstrate their worth and applicability to meeting user information needs. A request for training materials may indicate that this approach has been successful in getting the word out about divisional capabilities and resources, resulting in an increased demand for support. The interpretation is that focus group participants may now be aware that these resources exist and could add value to their research efforts, even if they do not fully understand how to exploit them to their intended potential.

Impact on Strategic Planning

Looking at these three emerging areas through a broader lens, the data collected and analyzed from the focus group sessions led to a number of recommendations for potential new projects and services. Suggestions were organized according to difficulty and magnitude.

- **Category 1:** Easy short-term solutions or "low-hanging fruit." For example, users requested additional avenues for alerts on new Research Library services, resources, and events. An electronic message board outside the entrance to the Research Library was identified as a good central point; many users pass this spot on their way to and from the cafeteria. To take advantage of this marketing space, ISD has created more displays and has updated this content more frequently. This is a now a regular component of communications activities from ISD to the user community.
- **Category 2:** Discrete projects that can be completed within one to one-and-a-half years. For example, ISD's newsletter has been produced and disseminated on a monthly basis for several years. This publication contains articles on new resources, services, and capabilities within the division. It is considered to be the major marketing vehicle addressed to users, with nearly all ISD staff contributing some content. Typically, it is provided in two formats: a print edition and an electronically distributed PDF version. Users indicated that this publication offers value for them and expressed interest in the content included, but, importantly, not as a PDF attachment. As a result, ISD is investigating several alternative formats for distribution, including a linkable HTML-based newsletter.
- **Category 3:** Strategic projects that will need to be completed over time and represent long-term changes in services or new business actions for ISD. In keeping with the information seeking behaviors of engineers, NIST research efforts have become much more interdisciplinary and personalized. The increasing work demands for these users make it harder for them to network in new areas, even within the NIST organization. As a result, there is opportunity for ISD to

expand into these types of services on a long-range basis. At present, a knowledge management and training plan is being created by the Lab Liaison team to address both short- and long-term goals for this new strategic objective.

- **Category 4:** Areas for further study that require additional analysis in order to determine appropriate recommendations. Focus group participants indicated very different use patterns for book resources, particularly when compared with data collected during the 2001 customer survey. The book collection may not be as valuable and relevant for NIST users as in the past. As a result, the Research Library should consider whether or not to continue expanding the book collection at the current rate, particularly in these high-priority research areas. This is an area requiring further analysis to better understand how peer libraries are approaching book collection development activities as well as to evaluate the necessity for a book-collection weeding program.

The focus group assessment data indicated some findings that were complementary to the current ISD strategic objectives. In the course of the analysis of focus group data, the team worked with ISD management; for example, Category 3 findings were of specific interest to ISD's management team as they addressed strategic planning activities. The results of the analysis raised several issues for consideration:

- Does user feedback on desired services and resources map to those areas currently identified as ISD strategic objectives?
- Do ISD staff members have the skill sets necessary to implement many of the desired future goals and services? If not, where are the gaps and which areas are of greatest priority for training emphasis?
- In order to achieve strategic objectives highlighted by the focus group feedback, what interim steps are required? Are there intermediate portions of the infrastructure that must be created?

In order to create more cohesion between these areas, the management team augmented portions of existing strategic objectives aimed at developing and promoting knowledge management and analysis capabilities. These newly enhanced efforts will focus on establishing opportunities for NIST researchers to network and connect with one another to facilitate knowledge sharing and increase the breadth and value of users' personal information sources within the organization.

The focus group team also worked with the management team to guide the development of activities and marketing priorities for the coming year. These activities stressed building the capabilities, skills, and services needed to achieve the newly modified strategic plan. For

example, a new objective was created to identify global-user training needs and develop appropriate materials or courses. This effort will address researchers at all levels of the NIST labs, not just those involved in high-priority research areas. In addition, this objective will capitalize on the relationships that lab liaisons have built and will offer opportunities for user outreach.

The management team then further deconstructed the newly revised strategic objectives to determine what tasks would be required. For example, to develop a sustainable approach to training and knowledge management, a number of issues needed to be addressed such as identifying lab-wide/lab-specific needs and defining required information technology capabilities and infrastructure. Responsibility for tracking and accomplishing these individual tasks was then mapped to various staff members.

In a parallel but unrelated effort the management team conducted a staff-wide skills assessment. The data collected from this analysis were used to develop a long-term training plan, integrated with the division's strategic vision. The focus group team provided the results of its analysis to the management team to be used in concert with the skills assessment data. These findings were then used to help answer the questions about resident skill sets and areas targeted for future growth and professional development.

Each staff member has a tailored performance plan identifying primary responsibilities for individual tasks related to achieving the strategic objectives. For example, the authors share responsibility for creating an overall training and knowledge management plan in the coming year. This plan will include a review of current training and knowledge management approaches, information needs identified across all NIST labs, informal surveys of other peer information centers, and an inventory of available resources. Specific metrics for evaluating the execution and success of this plan will also be addressed. In particular, user assessment will be considered as part of the execution of these objectives.

Conclusion

The focus group team gained valuable insights from these assessments. Its assessment tool provided a great forum for reaching small segments of the Research Library's user population. The findings were ultimately more useful due to the "surprises" that were uncovered. Participants' comments highlighted a need for more nontraditional knowledge management and training activities. The management team took the focus group data as a blueprint for planning and analyzing new resource and service areas. The focus group feedback broadened the scope of knowledge management services and programs, resulting in more coherent strategic planning.

In general, the following lessons were learned about conducting and using focus groups:

- a focus group assessment can produce much rich data about the information needs of a specialized customer group;
- focus groups provide beneficial prospects for outreach and "face time" with customers, with built-in follow-up opportunities for relationship building;
- since outside consultants may lack the background to interpret user comments during discussions, inside knowledge of NIST research was important in directing and interpreting group discussions;
- focus group findings can be unexpected, so it was important to be prepared to analyze data with an open mind;
- interdisciplinary participants may take advantage of the focus group format to meet new colleagues and exchange ideas—another unanticipated benefit;
- debriefing after each session and coding of responses are each time-intensive processes that require much discussion; and
- focus group format allows users to say *why* they are satisfied with library services—often a more useful measure than findings from quantitative surveys.[21]

The success of this experience highlights the value of expanding the toolbox of user assessments used within ISD. The division, as a whole, uses a wide range of measurement activities from customer surveys to benchmarking studies. The focus group experience offered a great complement to these other methods. In addition to providing input for strategic planning and identifying new service areas, the focus groups also served as an outreach activity, yielding important, direct, face-to-face time with customers. Focus group participants emphasized that they enjoyed this sort of assessment activity as a complement to broad-based customer surveys. Nearly all participants indicated that they would willingly contribute again. As a result, several staff members will be involved in training activities to build skills in facilitating group discussions and other benchmarking survey tools. The NIST Research Library will continue to use focus groups or similar discussion forums as a way to gather feedback for future issues and needs.

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16. Several focus group participants were in management positions: first-line supervisors (group leaders), second-line

- *The Long Tail: Why the Future of Business Is Selling Less of More* by Chris Anderson (Hyperion, 2006). Anderson's book is an easy and fascinating read. Anderson expands upon his 2004 *Wired* article. It was named by Amazon as one of the top business books for 2006.
- The Long Tail Blog (www.thelongtail.com)—Anderson maintained this blog as he wrote the book, often soliciting comment from the blog readers on selected portions of the text. He continues the discussion, even after the publication of the book. You can join in the discussion or just read about his latest explorations of the Long Tail phenomena.
- There are also a couple of podcasts with Anderson, where he discusses the Long Tail concept. One is located on the Library of Economics and Liberty site, in their EconLog podcast section. Russ Roberts interviews Anderson about his book. The podcast runs 52.4 minutes and can be played online or saved and downloaded as an MP3 file at www.econtalk.org/archives/2006/08/chris_anderson.html. The second podcast is located on the IT Conversations site, where Anderson gives a short talk on the Long Tail concept and discusses it with Joe Kraus, CEO of Jotspot. The podcast runs 38.5 minutes and can be played online or downloaded as an MP3 file at www.itconversations.com/shows/detail477.html.

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supervisors (division chiefs), and upper-echelon technical managers. Typical of the NIST organization, nearly all group leaders and division chiefs are also major project leaders in their own right. While they may have additional administrative and supervisory responsibilities, they also participate directly in research activities. As a result, their usage patterns are roughly comparable with those bench scientists considered to be front-line library users.

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Appendix. Focus Group Questions

- In general, how do you use the Research Library's services and collection in your current SFA (NIST Strategic Focus Area)–related research work? Services can include working with lab liaisons as well as using physical and electronic resources.
- Which resources are of most value to you in your current SFA-related work? For example: journals, e-journals, databases. You can also consider your interaction with lab liaisons.
- How comprehensive do you find the Research Library's collection to be for your SFA-related research area?
- What do you find most and least helpful about the Research Library's SFA resource collection?
- How satisfied are you that the Research Library understands and meets your SFA-related information needs?
- Do you have any different information needs/work habits in your current SFA-related research as compared to previous (pre-SFA) projects?
- What one thing should the Research Library stop doing?
- What one thing should the Research Library start doing?