藍圖法應用於館藏管理品質
改善之研究

謝寶煖[*]

摘要

　　藍圖法係專門針對服務系統而設計，目的在將服務提供系統之重要過程以流程圖加以展開，並且特別標舉出與顧客互動之接點以及易造成品質不良之失誤點，以做爲服務品質改善之依據。本文以館藏管理爲例，展示藍圖法之具像化功能以及溝通特性，以彰顯館藏管理各項活動之跨部門特性，以有效整合不同部門間之活動，提供管理者做爲改善圖書館服務品質之參考。

＊謝寶煖，現任國立臺灣大學圖書館學系講師。

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Blueprinting Collection Management for Improved Service Quality

Pao – Nuan Hsieh

Department of Library Science

National Taiwan University

Introduction

The primary functions of university libraries are to fulfill both the needs of the instructional programs of their parent institutions and the research needs of students, faculty, other staff members, and people outside the academic community. Therefore, university libraries have always taken pride in the size and depth of their collections. They seek to fulfill the needs of users by simply building larger collections, and manage themselves on the basis of the concept of collection development.

The university library is now at a critical point in its development. The world of scholarly communication and publishing is changing profoundly. The radical transformation and automation of university library services and operations, and rising expectations on the part of the user community, must encourage a fresh and critical look at the management strategy and service delivery system. One currently popular approach is to shift energies and resources from

building and owning "just-in-case" local collections to providing access to and delivery of the right information "just-in-time" to satisfy users' information needs. In short, university libraries should shift gears from collection development to collection management.

Only use makes a collection valuable. Therefore, we should evaluate collections and improve service quality in terms of user needs and customer satisfaction. A key measure of customer satisfaction is whether a customer obtains the needed information within an acceptable time frame. In order to satisfy user needs as efficiently as possible, libraries should analyze the process of access of users, and eliminate or, at the very least, lessen any obstacles that may hinder users from satisfying their information needs. In the availability study reported by Schofield, Cooper and Waters, it was found that of all user search failures, 1 3.5% were due to the title not being owned, 32.4% were due to inadequate user searching, and 54% were due to the title, although owned, not being available.[1] These results indicate that there are processes and workflows that the library can modify in such a way that can reduce materials unavailability and increase the satisfaction of customers.

Acquisition of information by the user is a circular process, referred to as the "Information Cycle Network" (ICN) by Harer. The ICN contains three components. The first is identification, i.e., searching for information, using whatever means are available, and identifying a source. With the help of reference librarians, the user may utilize the resources more effectively. The second component is access. Once the source is identified, the user then wishes to know how and where to obtain the physical information. By using an on-line

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[1] J.L. Schofield, A. Cooper, and D.H. Waters, "Evaluation of an Academic Library's Stock Effectiveness," *Journal of Librarianship* 7 (July 1975) : 207 – 27.

public access catalog (often referred to as the "OPAC"), the user can ascertain status information for a given title. The third and final component is delivery. After the user is certain that the library has the materials needed, he will then want to physically access the collection. An appropriately managed stock and systematically designed sign systems can help the user efficiently locate the needed materials. The circle is often completed when one source points to more information and further leads to the identification of information resources,[2] while the ultimate goal of the user in the entire information cycle network is to obtain the physical information he requested. Therefore, collection management should adopt a customer-oriented approach to make sure that every step involved in meeting the user's request for information is completed smoothly.

From the analysis of the user's information cycle network, we can get a clear idea that materials availability accounts for a library's acquisitions, cataloging/processing, stack management, circulation, and user knowledge.[3] That is to say, collection management is generally multi-functional, and also cross-functional. Just because circulation service is the most frequent contact point between the user and the library, users always judge the quality of a collection by their experience of circulation service, and evaluate the service quality of a library according to whether they can obtain the materials they need. In fact, the processes or operations in a library are interwoven. A user's success normally requires a close coordination of the activities of each function. Only if the workflows are connected smoothly from acquisition and cataloging, to preservation,

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[2] John B. Harer, "Information Delivery in the Evolving Electronic Library: Traditional Resources and Technological Access," *in Access Services in Libraries: New Solutions for Collection Management*, ed. Gregg Sapp (New York: Haworth, 1992), 79.

[3] Neal K. Kaske, "On My Mind: Materials Availability Model and the Internet," *Journal of Academic Librarianship* 20 (November 1994): 317.

reference, and circulation, can the user then be assured of getting the needed materials.

To offer excellent quality service, libraries need to be aware of the needs of both their users and their employees, treating the latter in the manner of internal customers. From the perspective of customer satisfaction, the user is the final customer, (i.e. the external customer), and the employee is a customer also, (i.e. the internal customer). In the delivering of library service, all work can be considered to be a process. Each process receives input from an internal supplier, i.e. the previous operation.　　Each process has a " process user, " who adds value to that input and converts it into an output for the internal customer —— the next operation.④ The connections between each of the internal customers thus develops into a customer chain,⑤ and the external customer —— the user —— happens to be positioned at the end of the customer chain. Only when a whole chain of internal customers is satisfied does the external customer experience enhanced satisfaction.

Therefore, excellent quality service and customer satisfaction can only be achieved through process improvement. Certainly, there need to be some useful, comprehensive and systematic ways of identifying an ineffective process. Service blueprinting is an effective technique to describe the service delivery process in visual form, and to identify those aspects the customer encounters in order to improve service quality effectively. Therefore, service blueprinting is demonstrated in this paper to analyze the process of collection management so as

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④　Keki R. Bhote, *Next Operation As Customer* (*NOAC*) : *How to Improve Quality, Cost and Cycle Time in Service Operations* (New York : American Management Association, 1991) , 15.

⑤　Richard J. Schonberger, *Building a Chain of Customers* : *Linking Business Functions to Create the World Class Company* (New York : The Free Press, 1990) , 1.

to improve the service quality of university libraries.

The Anatomy of a Service Blueprint

In the simplest terms, a service blueprint is a picture of a service delivery system. In the development of a building, the design is captured on architectural drawings called blueprints, because the reproduction is printed on special paper, creating blue lines. These blueprints show what the product should look like and all the specifications needed for its manufacture. G. Lynn Shostack[6] has proposed that a service delivery system can be captured in a visual diagram (i.e. a service blueprint) and used in a similar manner for the design of services .[7]

A service blueprint depicts process and structure by employing the horizontal and vertical dimensions of a flat surface. Process is depicted from left to right on the horizontal axis as a series of actions (rectangles) plotted chronologically along the horizontal axis of the service system blueprint. A flow line marks the service path by connecting discrete actions chronologically.

Service structure is depicted on the vertical axis in the form of organizational strata, or structural layers. Four primary structural strata are common to all library services : customer interaction, public services, technical services, and management (see Figure 1) . Within these four primary strata, finer distinctions can be made. In essence, a service blueprint turns the traditional organizational chart upside down and adds action to it.

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[6] G. Lynn Shostack, " Designing Services That Deliver, " *Harvard Business Review 62* (January – February 1984) : 133 – 9.

[7] James A. Fitzsimmons and Mona J. Fitzsimmons, *Service Management for Competitive Advantage* (New York : McGraw – Hill, 1994) , 72.

In the customer stratum, a line of interaction demarcates actions performed by the customer from actions performed by public service contact personnel. Customer actions are placed above the line. Actions performed by contact people are located below the line. As noted earlier, these actions are charted on the service path proceeding from left to right.

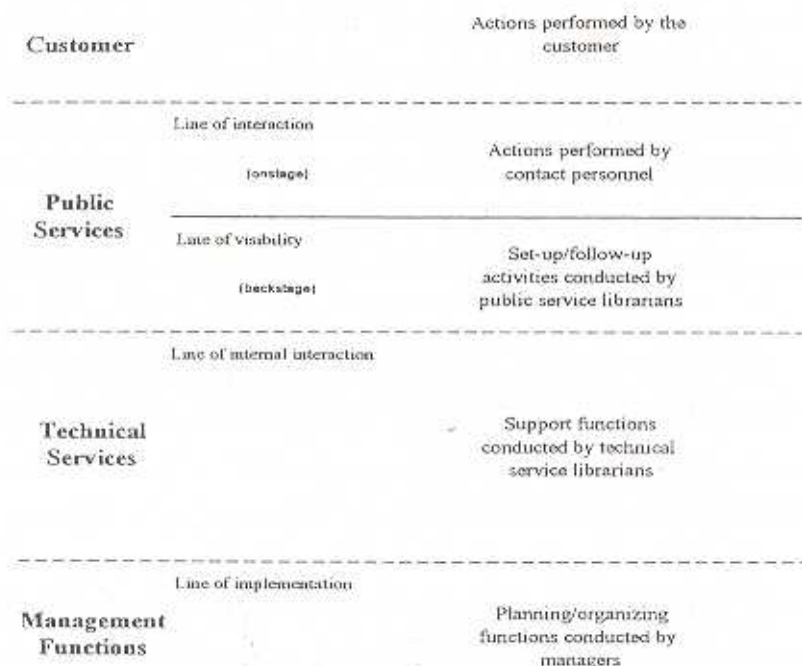|		Actions performed by the customer
Customer		
	Line of interaction	
	(onstage)	Actions performed by contact personnel
Public Services	Line of visibility	
	(backstage)	Set-up/follow-up activities conducted by public service librarians
	Line of internal interaction	
Technical Services		Support functions conducted by technical service librarians
	Line of implementation	
Management Functions		Planning/organizing functions conducted by managers

Figure 1: The Anatomy of Service Blueprint

The actions of public services are further classified by a line of visibility which separates on-stage from backstage actions. The on-stage portions of the service system are where customer contact occurs, and where customers obtain tangible evidence of the service, with attention being paid to ambiance and effectiveness (e.g., a reference desk). On-stage actions refer to the public

performance of the service, or actions visible to the customer, while contact people set-up aspects of the service environment prior to the customer's arrival, and frequently engage in follow-up work in order to complete the service following the customer's departure.　These backstage activities, conducted below the line of visibility, are the behind-the-scenes actions performed by contact people in order to create the service experienced by customers. The backstage portions of the system are out of the customers' view and often serve as a factory for efficiency (e.g., the ordering and receiving processes of acquisition), while some of the least visible steps in the process are the most critical determinants of quality .⑧

This separation does highlight the need to give special attention to operations above the line, where customer perception of the service's performance are formed.　The physical setting, the decor, employees' interpersonal skills, and even printed communication materials all make a statement about the service. The percentage of the blueprint above the line of visibility varies according to each service, but often, a large part of the blueprint is below the line of visibility.　Shostack likens what lies above the line of visibility to the tip of an iceberg .　⑨　In a library, most processes in the service delivery system are invisible to the customer.　In addition to the set-up and follow-up activities performed by the public services librarians, all the activities conducted by technical services librarians and managers are below the line of visibility.　Particular attention must be paid to the processes below the line even though customers are often totally unaware of them.　·These processes are part of the service too, and

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⑧　G. Lynn Shostack, " Understanding Services Through Blueprinting, " *Advances in Services Marketing and Management, vol. 1* (Greenwich, Conn. : JAI Press, 1992) , 80.

⑨　Shostack, " Designing Services That Deliver.

can result in the success or failure of the portion of the blueprint visible to customers. However, attention to the portions of the blueprint above the line cannot be ignored. Such processes provide the only tangible evidence a customer uses to verify the effectiveness of the service. Therefore, all processes below the line as well as all visible aspects of the service, that is, tangible clues, must be carefully designed to maximize the desired effect on the customer.

Public librarians do not normally work in isolation. Public librarians play an intermediary role in marketing the product produced by the technical librarians to the customer. Other departments contribute services or information used in rendering the service.

A line of internal interaction separates technical services from the backstage of the stratum of public services. Lines of internal interaction delineate the library's internal customers, whether across departmental lines, or from one work station or professional specialty to another within the same department. It is this characteristic which makes the service blueprint useful as a communications tool for conveying the service picture to all service employees. Such a device builds awareness of how an individual's job contributes to the creation of the service overall.

Finally, a line of implementation separates the planning and organizing functions from " doing " activities. By documenting process and structure, service blueprints support management's task as a decision-maker. Service blueprints animate service details, and show managers the underlying pattern, that is, connections and relationships among key elements of the service system.

When the patterns and connections are explicit, the rational basis for key decisions can be demonstrated objectively.

Blueprint for Collection Management

The first step towards achieving customer satisfaction is to " blueprint " the service delivery processes that affect customer satisfaction in order to pinpoint opportunities for improvement. Figure 2 shows how collection management appears in blueprint form.

From the customer's perspective, collection management means that the materials needed must be acquired, organized, easily accessed, and also must be available in usable condition when needed. The principal concerns of collection management, thus now shift from building a collection to access and delivery ; that is, to help users identify what they need and what is available and then getting these materials, or the contents of these materials, into their hands. In order to make it more convenient to manage service quality, the activities associated with collection management are further divided into three stages, namely access, delivery and acquisition. Of these stages, access and delivery may be attributed to the information cycle network generated by the customer, while the acquisition stage is attributed to the technical services below the line of visibility.

The collection exists to serve customers' needs. No collection can exist in any usable form without a full array of services working to make it accessible and available to customers. ⑩ Since the most relevant element of the availability equation is bibliographic access, i. e. the ability of customers to locate an owned item in the library's catalog. ⑪ Thus the blueprint for collection management may start when the customers search for needed information using the

⑩　William A. Wortman, *Collection Management* ： *Background and Principles* (Chicago ： American Library Association, 1989) , 13.

OPAC and end when the acquisition librarians have acquired the unowned materials requested by the customers and have sent them to the cataloging department for value-adding, as demonstrated in Figure 2.

The access stage begins with the user's bibliographic access to the collection. By using the OPAC, the user can ascertain status information for items sought at the time of catalog inquiry, and perhaps make an on-line request that these items be recalled and/or specially set aside upon return from their current circulation. However, as Buckland has pointed out, " the on-line library catalog is probably the most sophisticated computer system of any type in routine, direct use by the general public · " ⑫ Thus, when the user fails to locate the materials needed from the library catalog, the user may ask the reference librarian for help. By virtue of their training, reference librarians can verify whether there is any mistake being made by the user in the access process which causes the user's failure. Most importantly, when the materials needed are unowned, the reference librarian can assist the user in using the OPAC system of cooperative libraries in order to get the materials needed via document delivery or interlibrary loan services. Meanwhile, the user can also recommend that the library purchase the unowned materials by filling out an order request form.

In order to satisfy the user's information needs, the reference librarians need to build and maintain a reference collection, to set up database and information systems, and to arrange facilities and equipment. But the reference

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① Carol A. Mandel, " Trade – offs : Quantifying Quality in Library Technical Services, " *Journal of Academic Librarianship* 14 (September 1988) : 215.

⑫ Michael Buckland, *Redesigning Library Services : A Manifesto* (Chicago : American Library Association, 1992) , ix.

service is not completed until an evaluation of customer satisfaction has been made, and the results have been fed back to the acquisition and other related departments.　　Furthermore, reference librarians should also cooperate with acquisition librarians to identify the strengths on which collections are built upon and the weaknesses to be remedied, and also devise a collection policy that will meet customers' interests and needs.　　Since reference librarians are the most direct link (sometimes the only real link) that libraries have with their users, and have been always working with the end user throughout their entire process of an on-line search, LaGuardian strongly suggests that reference librarians redirect time and energy to the improvement and redesign of the OPAC system . ⑬

What the user does during the delivery stage is gain physical access to the collection.　　As the user ascertains that the materials needed are currently available, then the user may wish to locate them from the shelves.　　However, users frequently fail to locate items in the bookstacks because they copy call numbers incorrectly, are not familiar with library classification systems, or misinterpret status/location information.　　At such times, customers may ask circulation librarians for help in finding what they need.　　If the material needed by the user cannot be found, the circulation librarian may refer the user to a reference librarian for consultation.　　At the same time, the circulation librarian needs to make a decision as to whether a replacement purchase is needed, and to make a recommendation.

Similarly, the circulation service can be completed only when a materials availability study has been conducted and the results have been fed back to ac-

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⑬　Cheryl LaGuardia, " Desk Set Revisited : Reference Librarians, Reality, & Research Systems' Design, " *Journal of Academic Librarianship* 21 (January 1995) : 9

ACQUISITION STAGE
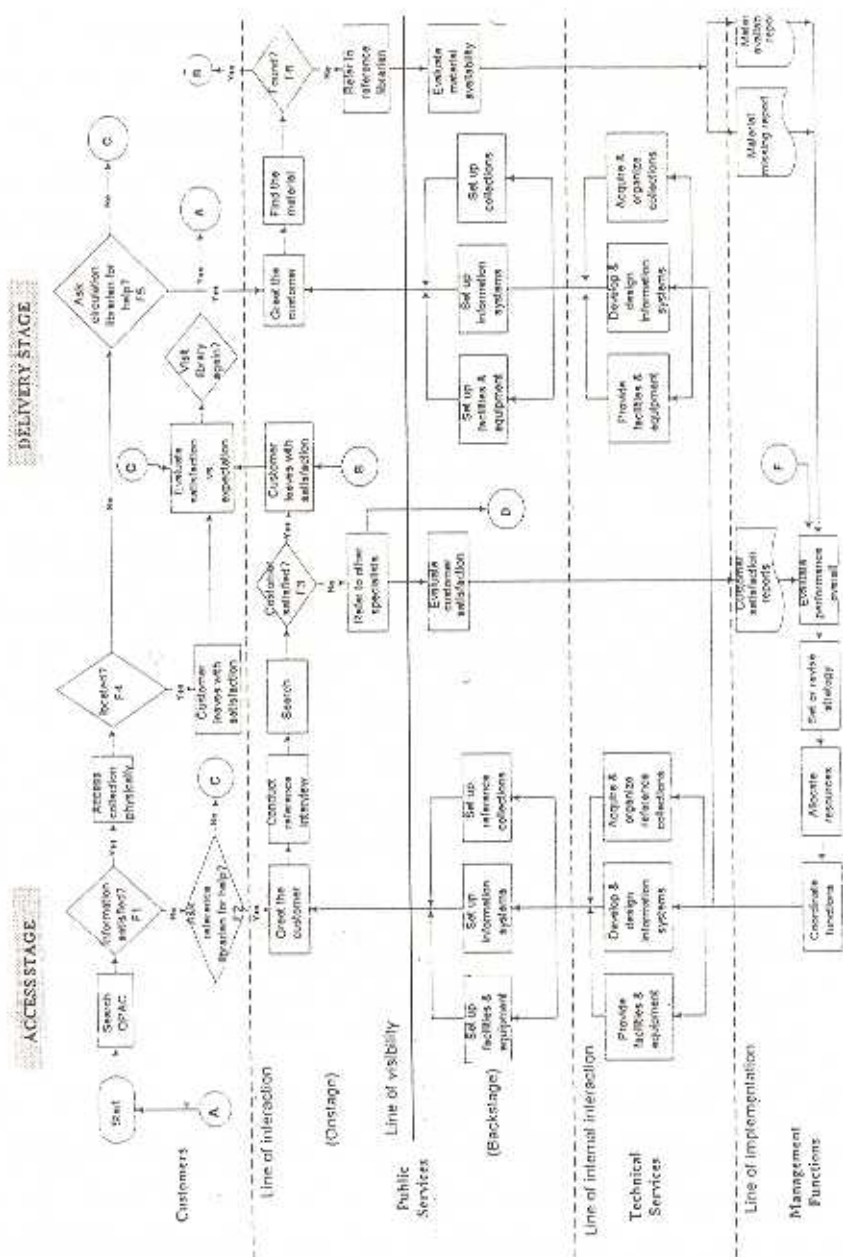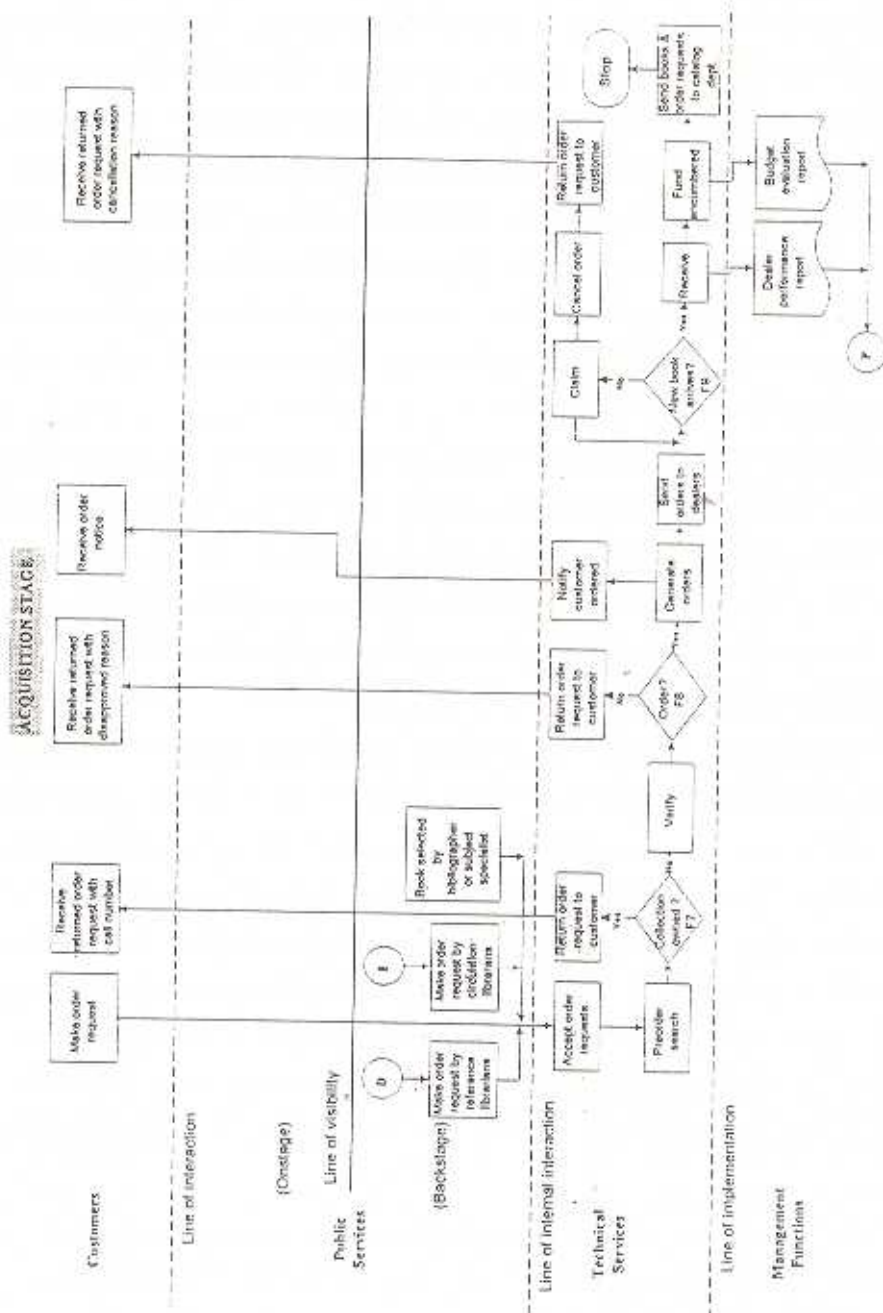
quisition, preservation, and other related departments. According to the findings of materials availability studies, the service quality of bookstacks may be improved and OPACs may be adjusted or redesigned to meet the requirements of users. Meanwhile, the replacement purchase resulting from missing materials needs to be analyzed also, and the subject interest of users should be referred to the acquisition department to strengthen related collections. Finally, the strategy of collection management should be developed with the coordination of librarians in the acquisition, reference, circulation, and other related departments.

Most of the activities conducted during the acquisition stage are performed behind the scenes, as depicted in Figure 2. The first activity conducted by the acquisition librarian is book selection. Substantially, the responsibility for building a fine collection to meet users' needs may not only rest with library staff in the acquisition department, but also with staff in the reference and circulation areas, and most importantly, with the library's users.

Besides book selection, the two basic operations performed by acquisitions staff are ordering and receiving. A broad definition of ordering would include the following : preorder searching to prevent duplication and to verify order information, producing and sending the purchase order, claiming, recording the vendor's reports, and handling cancellation. Receiving may begin with unpacking shipments, and includes matching the received item against the purchase order and the vendor invoice, communicating with the vendor to resolve problems, approving invoices for payment, fund encumbering, and recording the receipt of parts of series and sets .⑭ As materials are acquired, collection

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⑭ Sara C Heitshu, " Acquisitions, " in *Library Technical Services : Operations and Management*, 2d ed., ed. Irene P. Godden (San Diego, Cali : Academic Press, 1991) , 102.

maintenance and interpretation lay primary responsibilities on departments other than acquisition. First of all, all materials acquired must be sent to the cataloging department for value-adding so as to make the OPAC search possible.

As Shostack has depicted, " some of the least visible steps in the process are the most critical determinants of quality‧" ⑮ Traditionally, the process of acquisition has been likened to a " black hole‧" ⑯ When the order request form has been filled out, then waiting is the only thing the user can do.

From the perspective of service quality, communication with users is a necessary adjunct to the acquisition process. Any change in either the flow from the person initiating the request or the flow from the person making the acquisition to the vendor must be immediately communicated to the person making the request. The person making the request has the right to know that the order requested is being handled successfully；or cannot be filled because the title is already in the collection, has been halted because the title is out of stock, or is no longer available. If such communication is neglected, the user will think the librarians are breaking their promise. Furthermore, breaking the service promise is the single most important way in which service organizations fail their customers. ⑰

The librarians have always known that the activities involved in collection management are extremely complex. As we explore the blueprint for collection management operations shown in Figure 2, it can be seen that the blueprint ar-

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⑮ Shostack, " Understanding Services Through Blueprinting, " 80.

⑯ Karen A. Schmidt, " Acquisitions：the Ordering, Claiming, and Receipt of Materials, " in *Technical Services Today and Tomorrow*, Michael Gorman and Associates (Englewood, Colo.：Libraries Unlimited, 1990) , 7.

⑰ Leonard L. Berry, Valarie A. Zeithaml, and A. Parasuraman, " Five Imperatives for Improving Service Quality, " *Sloan Management Review* 31 (Summer 1990)：34.

gues this point far more persuasively than a procedural manual or other narrative description.　While a blueprint reinforces the complexity of a service delivery system, it also introduces clarity and cohesiveness into the analysis process.⑱ Through blueprinting, the highly interactive nature of collection management appears to be obvious.　Studying the blueprint could suggest opportunities for improvement and also the need for further definitions of certain processes.

Blueprinting can be undertaken at different levels of detail.　A simple blueprint provides a bird's eye view of the overall service delivery process, displaying the major elements of service and depicting the principal interactions with customers and a plausible sequence in which they might take place.　A more detailed blueprint might zero in on a specific activity, such as claiming in the acquisition department, and this can be broken down into a series of subactivities.

For critical operations that are performance determinants of the service, standard execution times can be attached to each activity to help set standards for speed of service.　Some execution times can be represented in the form of a range to account for the discretion necessary in some transactions.　These standard times will be useful in making capacity decisions and setting expectations.

Managers can employ service blueprints to assist in the decision-making activities associated with strategy setting, the allocation of resources, the integration of service functions and the evaluation of performance overall.

⑱　William R. George and Barbara E. Gibson, "Blueprinting : A Tool for Managing Quality in *Service*," *in Service Quality : Multidisciplinary and Multinational Perspectives*, ed. Stephen W. Brown and others (New York : Lexington Books, 1991), 77.

Interfacing Service Encounters

Most services are characterized by an encounter between a service provider and a customer. We may recall from Figure 2 that this encounter occurs above the " line of visibility " on the service blueprints for collection management. This interaction, which defines the quality of the service in the mind of the customer, has been called a " moment of truth " by Richard Normann .[19] The encounter, often brief, is a moment in time when the customer is evaluating the service and forming an opinion of its quality.

A customer's encounter with the service delivery system can occur in three basic ways. First, the customer can be physically present and interact directly with the service providers in the creation of the service. In this instance, the customer has full sensory awareness of the service surroundings. Second, the contact may be indirect and occur via electronic media from the customer's home or office. Finally, some service activities can be performed with no customer contact at all.[20] Collection management blueprints provide an example where all three customer encounter options occur. Asking a reference librarian for help in information retrieval requires an interview with a reference librarian or subject specialist, searching an on-line catalog can be accomplished via a net work system, and the process of ordering is conducted in a back office (i.e. the acquisition department) of the library.

Realizing that such moments of truth are critical in achieving a reputation

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[19] Richard Normann, *Service Management : Strategy and Leadership in Service Business*, 2d ed. (New York : John Wiley & Sons, 1991) , 16 - 7.

[20] Fitzsimmons and Fitzsimmons, *Service Management for Competitive Advantage*, 78 - 9.

for superior quality, library managers should focus on these encounters to create a distinctive and competitive position in terms of quality of service. In this paper, the service encounter is depicted in Figure 3 as a triangle of interacting interfaces with the customer, that is, people, technology, and information.

Figure 3: The Service Encounter Interface Triad

People

Most customers consider the performance of personnel to be the most influential attribute of service quality in a service industry .[21] Quality service may be defined not only as the willingness but also the ability of employees to give prompt or timely service. Quality of service is perceived by the users to be high when courteous treatment, a positive attitude, helpfulness, friendliness, and personal attention are exhibited by the contact personnel. Furthermore, the contact personnel represent all the front-line employees that deliver the services, including public service librarians, support staff, and even assistant stu-

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[21] John C. Crawford, and Juliet M. Getty. " The Marketing of Services : A Quality Perspective, " *Journal of Professional Services Marketing* 8 (1991) : 7. ·

dents. Ideally, front-line contact personnel should have personality attributes that include flexibility, tolerance for ambiguity, and the ability to monitor behavior and change it on the basis of situation cues, and empathy for users.

Since a service cannot be inspected before delivery and then scrapped if defective, it has to be right the first time. For users, the willingness of library staff to be reliable, to do what they say they are going to do, is key to whether visiting the library is a positive or a negative experience. Besides, users expect the same friendly treatment, the same level of attention, and the same amount of effort to be shown each time they visit the library. In other words, the service should be delivered in a reliable or consistent manner. In addition, the contact personnel's appearance, what they say and how they say it are all unconsciously filed away in the users' brain as cumulative cues that eventually, taken as a whole with all the other evidence, add up to a mental portrait of the service.

In the blueprint for collection management depicted in Figure 2, all these forms of evidence appear above the " line of visibility " that shows which parts of the service system will be sensorially encountered by the customer. These must be managed as a whole in order for the service to have integrity and consistency in the user's mind.

TECHNOLOGY

With the coming of on-line library catalogs, technical changes that have been taking place in the back rooms of libraries for several years have suddenly become much more apparent to everyone. It is often argued that service operations tend to be predominantly personnel-intensive, the implication being that personnel management is critical to success in a service organization. In fact, many services, particular those performed by a library, are becoming increasing-

ly based on modern equipment and advanced information technology.

From the operational perspective, Levitt distinguishes between hard, soft and hybrid technologies. ㉒ Hard technologies are the most obvious, for they substitute machinery or tools for people in the performance of service work. By contrast, soft technologies involve the substitution of organized, preplanned work methods for the *ad hoc* and often serendipitous actions of individual service operatives. Hybrid technologies combine equipment with carefully planned systems to bring efficiency, order and speed to the service process, but the emphasis in a hybrid technology is on the service system itself. Consequently, technology in this paper includes all physical surroundings that facilitate the delivery of services, and the creation of " customer-friendly " operations that allow the employees to deliver services in the best way.

An employee with the best intentions in the world cannot provide service if he is not properly equipped. The service – oriented library should foster the willingness and enhance the ability (both in terms of knowledge and skills) of employees to be responsive, reliable, empathic and assured, by employing hard technology in the design of a work environment that makes it easier for employees to meet performance criteria. Furthermore, the library should make efforts to keep the appearance of physical facilities, surroundings and all other hard technologies attractive and up-to-date.

Performance consistency is enhanced when service logic or service technique is deliberately designed, and employees are well trained to implement it effectively. The shelving of books, serials, and even A-V materials, as well as the positioning of the reference and/or circulation staff for receiving inquiries from users all deserve careful consideration.

㉒ T. Levitt, *The Marketing Imagination* (New York : Free Press, 1983).

INFORMATION

New communication and information technologies clearly strengthen the possibilities that make person-to-person interaction resulting from their provision unnecessary.　Public use of the on-line catalog can be made readily available through the campus computing network or through dial-up using a personal computer and modem in offices, dormitories, and homes.　That is to say, there is a group of people who, although they use the materials and services provided by the library, may never physically appear in the library.　These information customers have been described as " fugitive users, " ㉓ for they, too, make up part of the library constituency, even though the library staff may not know much about them.

These fugitive users access on-line catalog and networked CD-ROM products at their workstations, and, occasionally, in the quest for a piece of information that is not available via one of the internal or external sources accessible through their desktop computers, they might wander into the library to get what they need without help from or interaction with librarians.㉔　Besides, many of the users are very keen on do-it-yourself when on their library tour. These fugitive and/or self-service users may thus also benefit from librarians through the provision of accurate, clear and attractive guiding information.

Certain self-service systems and pieces of equipment look as if they have been designed by librarians, for librarians.　Not only should the available tech-

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㉓ Beth Duston, " The Fugitive User, " *The One - Person Library* : *A Newsletter for Librarians and Management* 10 (June 1993) .

㉔ Guy St. Clair, *Customer Service in the Information Environment* (London : Bowker - Saur, 1993) ,67.

nology be customer-friendly, but even the phrasing of the instructions for use needs careful thought.   Ambiguous, complex, or authoritarian instructions may discourage users.   By contrast, communication materials with an attractive appearance and accurate contents may encourage users.   The service instructions provided should be professional and accurate, and conveniently located. The messages displayed on the OPAC screens should be described in language that users can easily understand, and the contents should be free of error and consistent all around.   Besides, an appropriately labeled stack, and systematically and consistently designed sign systems can help the user to tour the library effectively and successfully.

Identifying Fail Points

Blueprinting is a powerful tool for understanding the activities and processes involved in delivering services.   A well-constructed blueprint enables us to visualize the process of service delivery by depicting the sequence of front-stage interactions that customers experience as they encounter service providers, facilities, and equipment.   These interactions are supported by backstage activities, which are hidden from the customers and are not part of the actual service experience.

Displaying each and every step involved in creating and delivering service also gives managers the opportunity to identify potential fail points where front-stage or backstage processes are most vulnerable to break down and function other than intended, thereby adversely affecting an aspect of service quality. Managers can then identify the possible types of failures that might occur at those points, take preventive actions to stop failures from happening and develop contingency plans for handling failures that they cannot easily prevent.

In this section, nine fail points related to collection management have been

identified, as depicted in the blueprint for collection management in Figure 2.
Of the nine fail points specified, six were above the line of visibility, of which
four were above the line of interaction. The activities involved in collection
management are people-intensive and involve highly-direct personal encounters
which may explain why more of the actual service is above the line of visibility.

We believe the really critical area is where the customer and the system inter-
act. Here we find few design principles to make the basic encounters error-
free.

Table 1 describes the fail points during the stages of access, delivery and ac-
quisition ; the problems most likely to be encountered ; the most possible cause
of these problems ; and the fail-safing strategies to be adopted in terms of the
three interfaces of service encounters, i. e. , people, technology and
information.

In numerous service encounters in libraries, the user's input (e.g. , de-
scription of one's information need) become critical to the quality or level of
service provided.[25] In contrast to most manufacturing activities, library services
are typically performed in the presence of the user, often with considerable par-
ticipation on the part of the user, and sometimes initiated by the user. View-
ing customers as input to the service systm calls for the effective management of
their actions and coordination mechanisms to ensure tht the service-customer in-
terface is managed both efficiently and effectively in terms of service quality.[26]

Many research studies are seeking to identify the key dimensions of service
quality. Among those in the forefront is the work of Parasuraman, Zeithaml

[25] Thomas W. Shaughnessy, " The Search for Quality, " *Journal of Library Administration* 8 (Spring 1987) : 7.

[26] David A. Tansik, " Balance in Service Systems Design, " *Journal of Business Research* 20 (1990) : 56.

and Berry funded by the Marketing Science Institute which, over a period of years, has isolated five factors of service quality, namely tangibles, reliability, responsiveness, assurance and empathy.㉗　To ensure that the fail-safing strategies developed in Table 1 have properly reflected all　the imperatives of users' expectations of service quality, the five dimensions of service quality identified by Parasuraman, et al. have been thoroughly incorporated.

Access Stage.

During this stage, librarians strive to satisfy their customers through successful bibliographic access to collections.　The potential fail points arise when the users are unable to use the OPAC system to satisfy their information needs, or face difficulties in using the OPAC system while being reluctant to seek assistance from reference librarians.　Besides, when the users do ask reference librarians for help, the latter may eventually fail to satisfy the users' information needs.

To preclude these failures, all three interfaces should taken into account in

㉗　A. Parasuraman, V.A. Zeithaml, and L.L. Berry, "A Conceptual Model of Service Quality and Its Implications for Future Research, " *Journal of Marketing* 49 (Fall 1985) : 41 - 50 ; A. Parasuraman, Valarie A. Zeithaml, and Leonard L. Berry, "SERVQUAL : A Multiple - Item Scale for Measuring Consumer Perceptions of Service Quality, " *Journal of Retailing* 6 4 (Spring 1988)' : 12 - 40 ; Leonard L. Berry, Valarie A. Zeithaml, and A. Parasuraman, "Five Imperatives for Improving Service Quality, " *Sloan Management Review* 31 (Summer 1990) : 29 - 38 ; A. Parasuraman, Leonard L. Berry and Valarie A. Zeithaml, "Refinement and Reassessment of the SERVQUAL Scale, " *Journal of Retailing* 67 : 4 (Winter 1991) : 4 20 - 50.

developing fail-safing strategies. According to Swope and Katzer, the major reasons given for not asking a librarian questions were that the users had been dissatisfied with the past service of the librarian, the question was thought to be too simple, or the question was too bothersome for the librarian. ㉘ In terms of people interface, front-line employees need to be trained to be customer-oriented while expressing positive, helpful, and friendly verbal and nonverbal behavior to encourage customers to seek the librarian's help without hesitation.

Managers should recruit people-oriented staff for the reference services and other public-contact jobs, and build into them a " do-it-right-first " attitude, and then appraise them by service performance. Conversely, the library might even be able to exhibit some control over customer actions by incorporating critical-thinking skills and computer literacy into bibliographic instruction programs.

The research done by TARP indicates that one-third of all customers' complaints are related to problems caused by the customers themselves. We do not present this finding as a way for management to justify poor service but, rather, to indicate that libraries need to develop processes that eliminate the foul-ups leading to complaints. We need to set up hard technology and to design soft technology to help the customer do the right thing. The delivery systems that back up the librarians must be designed for the convenience of the customer, rather than for the convenience of the library or librarians.

The best technology solutions are the ones that hide the technology behind a clean, easily understandable information interface. Since users do not have any more time than do librarians to master library systems, libraries should provide a detailed systems guide and customer-oriented on-line tutorials which users can use without the mediation or interference of librarians.

㉘ Mary Jane Swope and Jeffrey Katzer, " Why Don't They Ask Questions ? " RQ 12 (Winter 1972) : 161 − 6.

Delivery Stage.

During the second stage, librarians make efforts to satisfy customers by successfully providing physical access to collection. The first fail point arises when a customer cannot successfully locate needed materials personally. Furthermore, many would-be borrowers never check with the circulation staff to see if the book is checked out or at another location when they have been unable to find it on the shelf. Conversely, when the customer does ask the circulation librarian for assistance, if the latter fails to find the item needed then another fail point arises.

Kantor has identified four major barriers that may decrease the chance that an item is available : (1)collection failure, i.e. the library may not own the needed item ; (2)access failure, i.e. the item was owned but not available (for example, it was being used by another user) ; (3)stack maintenance failure, i.e. a library error (for example, a wrongly-transcribed label or misshelving) ; and (4) user failure, i. e. a user error (for example, misreading the call number) may prevent the item from being located. ㉙ A book misshelved is a book lost, and , therefore, the most important strategy for fail-safing delivery failure is to train customer-oriented shelving staff and customer-oriented front-line staff in terms of people interface. Staff at the circulation desk, regardless of whether they are professional librarians or student assistants, provide the primary and sometimes sole personal contact with the library user. These employees are often the first to be encountered upon entering the library and they operate the services most frequently used by most students and faculty. They

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㉙ Paul B. Kantor, " Availability Analysis, " *Journal of the American Society for Information Science* 27 (September – October 1976) : 311 – 9.

are approached not only to check out books but are also requested to give directions or assistance regarding the use of the library. For many users, these staff members are the personification of the library . ㉓

The sophistication of integrated library systems require that the circulation staff have a broad training and understanding of the techniques and principles of bibliographic control. To prevent failures in locating materials, the circulation staff may, on the one hand, be equipped with manuals detailing the work to be done to maintain bibliographic control, the reasons for the work, and possibly a graphic representation. On the other hand, a carefully designed traffic flow and color-coded label and sign system may have a dramatic effect, too.

Acquisition Stage.

The processes in this stage are invisible to customers, but indirectly such backstage operations have an effect on the customer owing to delays or dysfunction. The first fail point in this stage arises when the customer makes requests to purchase items already held. The next comes when the library cannot approve the order for materials requested by the users. The last fail point arises when the title requested could not be purchased by the vendor in spite of being ordered.

A significant portion of the acquisitions librarian's time is taken up interacting with selectors/requesters and catalogers, negotiating vendor contracts, and dealing with sales staff from vendors and publishers. Acquisitions librarians can equip themselves with knowledge of business-oriented details to achieve ex

㉓　Charles J. Hobson, Robert F. Moran, Jr., and Arena L. Stevens, " Circulation/Reserve Desk Personnel Effectiveness, " *Journal of Academic Librarianship* 13 (May 1987) ： 93.

Table 1: Fail Points Analysis of Collection Management

Stage	Fail points	Problem	Fail-safing Strategies		
			People	Technology	Information
Access	F1 Customers can't use OPAC systems to satisfy their information needs.	Title not held.		Gateway to OPAC systems of cooperative libraries. Develop electronic inter-library loan service.	Encourage customer to make order requests on-line. Instruct customer to search subject-related OPAC systems.
		System unavailable	Incorporate computer literacy into bibliographic instruction programs.	Design customer-oriented systems. Maintain reliability of systems.	Design detailed system guide. Provide step-by-step operations guide. Provide customer-oriented on-line tutorials.
		Inadequate searching.	Incorporate critical-thinking skills into bibliographic instruction programs.	Develop on-line trouble-shooting board.	Provide step-by-step operations guide. Provide customer-oriented on-line tutorials.
	F2 Customer won't ask reference librarians for help.	Reference librarians fail to notice the arrival of the customer. Reference librarians are busy with other customers.	Train customer-oriented front-line staff	Place reference counter at the center of customer traffic. Schedule staff base on use frequency. Make appointment for research interview.	
		Customer frustrated by previous experience of dissatisfaction.	Train customer-oriented front-line staff. Systematic training in interpersonal skills. Build a "do-it-right-first" attitude. Link hiring standards to service standards. Design performance appraisal system based on service standards.	Design dialog scenario for reference interview.	
		Customer doesn't recognize the existence of the reference service.		Develop on-line reference question box via bulletin board system, etc.	Market reference service using press releases and bulletin boards.

Table 1: Fail Points Analysis of Collection Management (continued)

Stage	Fail points	Problem	Fail-safing Strategies		
			People	Technology	Information
Access	F3 Reference librarian can't satisfy customer's information needs	Sources unowned by the librar;	Emphasize the concept of service teams.	Gateway to OPAC systems of cooperative libraries. Implement ILL material delivery service	
		Reference librarians improper searching.	Strengthen reference librarians with skills of on-line search Enhance subject knowledge of reference librarians.	Design process checklist for on-line search.	
		Customers provide inadequate input.	Incorporate critical-thinking skills into bibliographic instruction programs.		
Delivery	F4 Customer can't successfully locate information needed	Collection failure. (Title not held.)		Develop subject-by-subject and form-by-form statement of collection policy with specific priorities. Develop cooperative collection development relationships with related libraries.	
		Access failure. (Title not available.)		Make complete inventories. Provide convenient photocopying service. Develop loan policy with flexibility. Develop duplicate purchase policy.	
		Stack maintenance failure	Train customer-oriented shelving staff.	Set shelving performance standard. Design color-coded label and sign system.	
		User failure. (Inadequate searching.)		Design customer-oriented traffic flow. Design computer-aided guide system.	Provide clear space layout. Provide systematic sign system.

Table 1: Fail Points Analysis of Collection Management (continued)

Stage	Fail points	Problem	Fail-safing Strategies		
			People	Technology	Information
Delivery	F5 Customer won't ask circulation librarians for help	Circulation librarians do not notice the arrival of the customer.	Train customer-oriented front-line staff		
		Circulation librarians are busy with other customers.		Scheduling staff base on use frequency.	
		Customer frustrated by previous experience of dissatisfaction.	Train customer-oriented front-line staff Systematic training in interpersonal skills. Build a "do-it-right-first" attitude. Link hiring standards to service standards. Design performance appraisal system based on service standards.		
	F6 Circulation librarians can't find materials needed for customer.	Citation errors.	Incorporate critical-thinking skills into bibliographic instruction programs.	Design default download format with mandatory bibliographic items.	
		Stack maintenance failure.	Train customer-oriented shelving staff	Set shelving performance standard. Design color-coded label and sign system.	
		Librarians' failure	Build a "do-it-right-first" attitude. Link hiring standards to service standards. Design performance appraisal system based on service standards.	Develop process checklist for material locating. Develop manual detailing bibliographic controls.	

Table 1: Fail Points Analysis of Collection Management (continued)

Stage	Fail points	Problem	Fail-safing Strategies People	Technology	Information
Acquisition	F7 Customer makes an order request owned by collection		Develop duplicate purchase policy. Systematic training in interpersonal skills.	Design constant communications channel for users.	
		Budget problems.	Train business-oriented details of acquisitions work. Systematic training in interpersonal skills.	Design well-regulated flow of orders.	
	F8 Acquisition- librarian can't order the material requested by customer	Incorrect bibliographic information		Design order request form with mandatory items emphasized	
		Doesn't meet the policy of collection development	Systematic training in interpersonal skills.		Market collection development policy using press releases and bulletin boards
	F9 Dealer can't purchase the materials requested by customer.	Vendor failure.	Develop relationship of partnership with vendors. Systematic training in interpersonal skills	Establish claiming check periods. Evaluate vendor performance based on service quality. Place order based on vendor performance	
		Publisher failure.	Develop relationship of partnership with publishers Systematic training in interpersonal skills		
		Library failure.	Train in business-oriented details of acquisitions work.	Set process checklist for bibliographic search	

cellence in their daily work. With regard to technology interface, what may be most important is the design of well-regulated flows of orders, since this provides a constant work load and ensures that funds are expended in an orderly fashion during the fiscal year.

Moreover, in order to keep the customers making the requests fully informed about the flow of orders and incoming materials, constant communications channels may be developed to immediately communicate to the people making the requests the status of orders.

Conclusion

By displaying each process or workflow in a logical and visible format, the managers can get much benefit from service blueprinting.

One of the greatest benefits of blueprinting is educational. When librarians attempt to blueprint a service system, they are forced to learn more about that system and are forced to face up to how little they actually know about the functioning of the entire system. Blueprinting also draws librarians into learning and thinking about appropriate techniques for visualizing, mapping and diagramming processes of all kinds · ㉛

Next, blueprints have an equally great benefit in managing and planning services on a day-to-day basis. Blueprints provide a way for a group of people to communicate and share knowledge, debate and refine their understanding, and prioritize and focus their efforts by having a visible " map " as a reference point. ㉜ Ultimately, the real advantage may lie in the ability of service blueprints to communicate the details of a service in a way that is efficient, in-

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㉛ Shostack, " Understanding Services Through Blueprinting, " 87.

㉜ Shostack, " Understanding Services Through Blueprinting, " 89.

telligible and useful to managers at all levels in service organizations. Service blueprints simplify the complexity associated with a service by systematizing it, or by revealing systems which are otherwise invisible. Traditionally, service delivering processes are communicated by means of verbal and/or written descriptions. Shostack figured out four risks associated with using words to describe a service, namely oversimplification, incompleteness, subjectivity and subject to interpretation. ㉝ Among these, incompleteness and oversimplification can be diminished by blueprinting because librarians find they are unable to complete a blueprint without substantial research. Blueprints also bring bias and interpretation issues to the surface, since the blueprint provides a mechanism for unearthing every piece of information needed to manage a service effectively, and blueprints can be copied, mailed, critiqued and improved by related people without losing critical information and without losing objectivity. ㉞ When a service system is thus revealed in objective and explicit terms, management is in a position to make a rational choice about how the process is to be structured to create the services desired by customers.

Thirdly, blueprinting is customer-oriented in nature. A well-constructed blueprint provides a bird's eye view of the overall service delivery process, and displays the major elements of service, showing the principal interactions with customers/users and a plausible sequence in which they might take place. Such a diagram is very helpful for clarifying the elements of the service, preventing important but subtle processes from being overlooked, and allowing the librarians and the customers to obtain the same view of the service system. The display of processes can also promote good management of the service delivery system by pinpointing vague workflows or unclear processes, and identifying po-

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㉝　Shostack, "Understanding Services Through Blueprinting," 76 – 7.

㉞　Shostack, "Understanding Services Through Blueprinting," 89.

tential fail points and designing fail-safe procedures to avoid their occurrence, thus ensuring the possibility of delivering high-quality service.　Most importantly, service blueprints depict the service system in a way that enables employees in all parts of the library to identify how "what 'I' do" contributes to service quality and customer satisfaction overall.

Finally, blueprinting signifies the nature of integration and interrelationships within the service system.　No part of the library system stands alone. Every part is interrelated with other parts of the system.　Every part affects and is affected by the entire dynamic structure.　Blueprinting facilitates the establishment of rational connections between seemingly unrelated operating activities, so that the causal relationships that organize and govern day-to-day service operations are made explicit.　Through blueprinting, all parties involved in service delivering —— public services librarians, technical services librarians, and managers —— can become increasingly aware of the intricacy and complexities of a service system, finding common ground for communicating and sharing knowledge across functional and organizational lines on an ongoing basis, in order to help improve decision-making and service quality.