Solution Concept for Public Libraries: One Library

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Fujitsu has been engaged in the public library market for over 30 years. With all-around support that covers the overall market through multiple products and services, Fujitsu currently has the largest share of this market in Japan. However, public libraries are operated mainly by local governments and they provide free-of-charge services in principle. Consequently, there are some aspects where the cost-benefit achieved with information and communications technology (ICT) cannot be directly identified. Furthermore, the current economic circumstances weigh on the operations of public libraries and make it difficult to invest in keeping and expanding services. On the other hand, there are growing needs for public library services due to changes in people's lifestyle that are caused by ICT such as the spread of smart devices. In consideration of these situations, Fujitsu has set out the concept "One Library" as guidelines for promoting new proposal activities and product development while continuing to expand multiple existing products. In this paper, the background to this concept creation and the product development based on this concept are described.

1. Introduction

Fujitsu has been offering package solutions for public libraries for over 30 years. As other companies worked on commercialization with the focus on mainframes, Fujitsu sold products mainly including office computers. This brought us a good reputation for the low prices and high stability and led to expansion of our market share. Subsequently, products for Windows servers and UNIX (UXP/DS) servers became key ones and now our core products are Web-based ones mainly for Linux servers. As a result, Fujitsu has acquired a share of about 40% in the public library market in Japan and has remained the top vendor.[1] In the future, to further enhance services we intend to make use of cloud technology, which is our strength, to provide packages and services for public libraries and reinforce linkages between libraries that allows ones in different areas to use the same functions (**Figure 1**).

This paper presents issues with the conditions related to constructing a library system and functions required, defines "One Library," Fujitsu's new concept for meeting those issues, and introduces key products that constitute One Library.

## 2. Issues with construction of library system

This section discusses issues related to constructing a library system, based on the environment surrounding library management. Requirements to be considered in library operations are also listed.

2.1 Issues arising from changes in society

Services offered by public libraries have undergone changes in order to keep up with changes in society. The responses to changes described below are linked with issues of the entire market.

1) Pursuit of cost-effectiveness

Public library services are provided free of charge in principle. For that reason, the recent economic climate in Japan sometimes obliges libraries to be a target of cost-reduction measures of local governments, which may include cutting down on material purchase costs as well as labor costs. Under the circumstances, one issue is how to propose and construct a system

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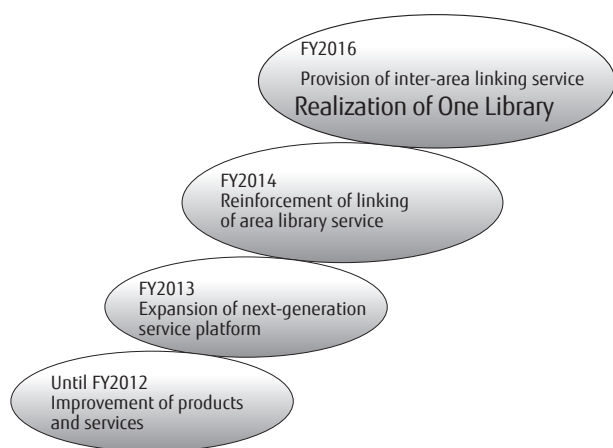
Figure 1
Roadmap for concept realization.

capable of improving services and clearly showing cost-effectiveness to library users.

2)　Expansion of Internet services

In recent years, the spread of smart devices and evolution of networks have enabled services such as search of collections and reservation via the Internet to become established in public libraries. However, services offered by public libraries are often evaluated as being "behind the times" or "old" compared with various services on the Internet. One reason for this is that the systems are seldom updated after they are constructed. Accordingly, future issues include finding a way to prevent services from becoming obsolescent, and also providing functions to support the continuous growth of services.

2.2　Issues arising from application of information and communications technology

As downsizing and open systems become widespread, system construction that supports general-purpose specifications of devices is desired, such as bundling items with purchased products as well as servers and clients. This has made it difficult for enterprises to differentiate their products from those of other companies in terms of system components including hardware. To resolve this problem, the issues are how to select and procure useful purchased products and how to generate many points of differentiation as application functions.

1)　Issues relating to linking with external services

Conventionally, library systems have been required to efficiently offer materials and information owned and stored within the libraries. Recently, users have come to want to also utilize external services mainly including electronic books and commercial databases. The electronic book service, in particular, is attracting attention as a need of users along with the popularization of smart devices, and is expected to expand as a library service as well. However, external services currently use individual communication procedures to feature originality as the number of vendors offering the service is rapidly increasing, which requires the system to support each of the individual, existing services. It is necessary for enterprises to develop and provide functions as a gateway capable of integrating communication procedures and supporting multiple services from the perspective of operability and maintainability as well.

2)　Issues relating to interlibrary linking

Traditionally, public libraries have secured their independence and developed networks and provided services in ways that are independent of other services. However, the recent social situation and expansion of networking have made it essential for them to maintain and expand their services by linking with other libraries in addition to participating in local government networks. To link library systems that have been individually designed, local governments and target libraries need to cooperate and discuss issues such as how to implement standard interfaces.

2.3　System construction requirements

Large-scale public library systems may be managing enormous amounts of data of a million users and 4 million books. Meanwhile, public libraries themselves are a service for residents and system load is concentrated on service operations (counter operations) as represented by loan and return. Accordingly, vendors are required to mainly satisfy two points, which are described below.

1)　Response

As the response of counter operations, 1 second or less is usually required for displaying data on the screen for loan and return and within 5 seconds for displaying results of a collections search. Adequate response is also required for internal management operations such as registration for cataloging and acquisition. In this

way, requirements relating to response may differ depending on the scale and category of a library and it is necessary to customize a system.

2) Non-stop operation

The Internet-based online public access catalog (OPAC) service, or a library search system for users, is widespread also among public libraries. For OPAC, multiple libraries in different areas may be linked to provide material information. The respective library systems must deal with not only non-stop 24-hour operation, but also stop operating (be closed) on an irregular basis. Furthermore, it is necessary to construct a system that supports various data formats.

3. New concept: One Library

As explained in the previous section, business for the public library market is responsible for continuously providing more cost-effective services according to changes in the social situation while continuing to grow as a project of local governments all over Japan, which are bases of services for residents. Library systems may differ in terms of customer requirements, performance and core operations depending on the scale and category, and this has caused independent functional enhancement and growth of individual products and services. To expand services for users in the future, services and functions of a single library have limitations.

In order to respond to these recent market trends and realize solutions to existing issues, a concept covering the entire business with the focus on linking between libraries must be formulated while maintaining the growth of individual products and services. In order formulate the concept, it is necessary to strengthen the following points.

1) Strengthening of inter-library network

To overcome the limitations of services that can be realized by one library, an inter-library network must be used to develop services offered by an enormous virtual library. To that end, it is necessary to implement the standard interface to realize inter-library linking.

2) Strengthening of services to "show"

The conventional Web services are realized by users with the purpose of accessing the relevant site, which means that services are (can be) only offered to users who intend to "use library services" as the

premise. In the future, a function to easily make it widely known that "libraries have information" to meet the needs of a variety of users will be required.

3) Strengthening of user-participated services

Services provided by public libraries were mainly delivery of information from the libraries including library search. In the future, libraries will be required to function as a "space" and thereby allow mutual information exchange by making it possible for users to utilize library services as well as more extensively providing information by incorporating information offered by library users themselves.

Accordingly, Fujitsu has formulated One Library, a concept to provide the guidelines for future business, based on the products and services offered up to now. One Library is intended to provide all-around support for the public library market regardless of the scale or category and strengthen linking functions, implement a standard interface and roll out and integrate the functions of individual products and services. It aims to activate inter-library communication and simplify and standardize operations.

4. Solutions offered by Fujitsu

Fujitsu offers solutions for the public library market that are friendly to users and have flexible scalability (**Figure 2**). They are described below.

1) iLisfiera

iLisfiera is a package intended for public libraries of prefectures, ordinance-designated cities and large cities. On the premise that it incorporates requirements of the respective libraries, it has expanded the range of customization in local environments to realize a highly redundant system construction. It has a search system
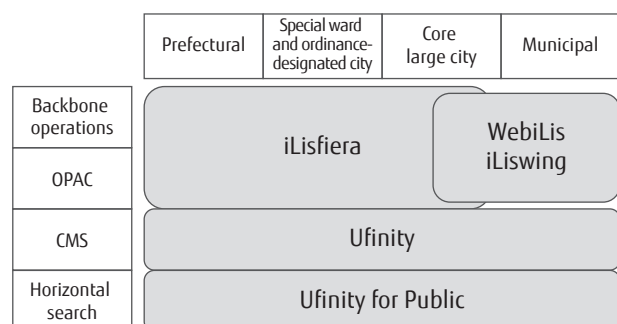
Figure 2
Fujitsu's public library solutions.

implemented that is centered on a search engine and supports high-volume traffic and information search, which are characteristic of large-scale libraries.

2) iLiswing

iLiswing is a public library package for municipal libraries. It improves operability for the staff and ensures ease of operation by a small number of people, which is characteristic of small libraries. It has a focused range of customization for the purpose of having low-cost system construction.

We determine whether or not to upgrade the two packaged software products above based on customer requirements. For customers who subscribe to the operation and maintenance service, we offer one upgrade a year and two patch modules a year.

3) WebiLis

WebiLis is a "cloud-type public library service" developed based on iLiswing. It is capable of providing all of the backbone operations and user services via a cloud. It realizes system construction without customization at a lower cost than iLiswing.

4) Ufinity (Ufinity for Public)

Ufinity, which was initially provided as academic portal SaaS intended for university libraries, has been rated highly for its "horizontal search" function covering multiple libraries and the high functionality and operability as a content management system (CMS), and service provision has started in the public library market. We also offer Ufinity for Public ILL (interlibrary loan) equipped with the "prefectural mutual loan service" function operated by prefectural libraries as the key players. This is the mutual loan (interlibrary loan and return) function, in which materials not owned by one library are borrowed from another library to offer to users, integrated with the horizontal search function into a system and allows effective use of materials in municipal libraries in a prefecture.

5. Functional enhancement of packaged software products

We have enhanced the functions of packaged software products based on One Library, presented in the previous section, as the business concept.

5.1 Enhancement of OPAC function

With iLisfiera and iLiswing, we have offered since the end of FY2013 a new version V3 with the following

functions added.

1) Reading promotion function

The "rating," "review/comment" and "recommend" function is provided to furnish "collections search," which is the main function of OPAC, with additional information. Users can rate books after reading them by the "number of stars" and post reviews, which allows new additional information to be offered to third parties. This is effective as a function for information delivery from users and information exchange.

2) Blog parts

Useful information about books recommended by libraries can be readily offered from the sites of other institutions within the local government for the information to be widely announced.

3) My Library

With this function, books that have been read and to be read can be organized through users' registration of My Page on the library Website.

5.2 Revision of operation function

For iLiswing, the operation screens have been revised for further improvement of operational efficiency. In view of "provision of the maximum service with a small staff," which is characteristic of the public library solution market, we realize provision of the maximum information by small numbers of operations. This effectively allows library staff to ensure the time for user services and supports more novel continuous information delivery by the library staff.

6. Conclusion

Public libraries are offered under the Library Law by local governments as a core service for residents, positioned as the center of education and learning. They have also come to assume the role of preserving, maintaining and making known regional cultural assets. In the future, products and services offered by vendor enterprises to public libraries are expected to provide functions as an "information coordinator" responsible for close examination, aggregation and delivery of information, in addition to the functions with the focus on search and offering of books (materials).

Fujitsu supports customers' information management and delivery in various markets. Concerning solutions for the public library market, our idea of the "solution" to future needs of the public library market is

to coordinate such information and offer it to customers. We position solutions that can be proposed and offered only by Fujitsu as the realization of the "One Library" concept and intend to move ahead with future activities.

References

1) Library Resource Guide (LRG) Vol. 2. Academic Resource Guide, Inc., 2013 (in Japanese).

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