

General review of National Digital Library Development in the National Library of China

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Abstract—Based on the review of BSC, the paper proposes BSC used in library management and evaluation. It devices the application into 3 steps: reviewing the library statement, developing a strategy map and selecting performance measures. It also creates the benchmark for library evaluation used BSC, and concludes the details on the implementation.

Keywords- Library evaluation, Balanced Scorecard, Benchmark

I. INTRODUCTION

Balanced Scorecard (BSC) dates from a 1992 article in the Harvard Business Review by Kaplan and Norton. The BSC translates an organization’s mission and strategy into a comprehensive set of performance measures and provides the framework for strategic measurement and management. It examines the organization from 4 perspectives as Figure1. Each perspective has one or more strategic objectives, or goals, associated with it. Four to eight measurements or metrics are devised for each category and each metric has a specific target.

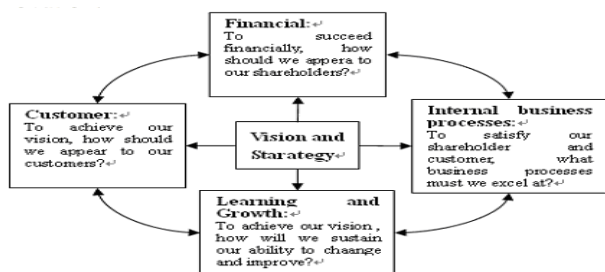


Figure 1. The Balanced Scorecard[1]

II. REVIEWS

A. Promotion of Library Committee

The implement of BSC in library assessment can help the library solve many management problems as above; so many library committees pay more attention to it. During 1999-2001, German Research Council sponsored a project used the BSC as a concept for an integrated quality management system [3]. In 2001, ARL and OCLC sponsored a three-day workshop on performance measures, which featured the BSC [4]. In 2005, IMLS granted the Carlsbad City Library, in partnership with the

Cerritos Library, Newport Beach Public Library, and San Diego County Public Law Library to create a Library Balanced Scorecard with appropriate performance measures for specific libraries, which is “Library Balanced Scorecard” (LBS). The project assessed the resources required for a library to create and implement a library scorecard, discovered some of the reasons why some citizens didn’t use the library, determined if there were unique problems that occurred as the size of the library increased, assessed the utility of the library scorecard for management as it sought to communicate the value of a public library [5]. ARL initiated a year-long project to assist, train, facilitate, and refine the implementation of library scorecards during 2009. Four member institutions are participating in this project: Johns Hopkins, McMaster, Washington, and Virginia. Three librarians from each of these institutions will attend three half-day training sessions led by Accelerant, a strategy management group specializing in the implementation of scorecards in the nonprofit environment [6].

Collaborated with these organizations, many libraries try to use BSC to evaluate their own performance. Besides the four libraries mentioned above, there are also many libraries in Europe and North America, such as the University and Regional Library Munster in German, the University of Hull library in UK, the Bond University in Australia, the Montréal Public Library in Canada and many different kinds of libraries in the USA [7].

B. Literature Review

The literatures about BSC in library assessment mainly introduce the experience of its implementations. As the responsible person of IMLS project, Joe Matthews is the core author in this area. In the articles, he reviews the LBS project, concludes the steps to use BSC, creating a new evaluate model to construct measures and expounds and proves the feasibility of its application [8]. In his new book Scorecards for Results: A Guide for Developing a Library Balanced Scorecard, it shows how any public library, regardless of size, can more effectively focus its resources, assess strategic impact, and in so doing better serve its community [9]. The other core author is James Self, who is the leader of the BSC project in University of Virginia library. In his papers, he provides more details, such as the rationale to use BSC in library assessment, establishing a structure for

implementation, choosing the metrics, translating values to metrics, setting targets, and some issues or controversies in the process [10]. Gulcin Cribb and Chris Hogan provide their own BSC indicators in four perspectives, and conclude the key success factors in the process of building the scorecard is the involvement of staff [11]. Mark Cyzyk, Macie Hall and Liz Mengel introduce their experience of using BSC in Sheridan library in Johns Hopkins University, and they mainly talk about the barriers libraries struggle to execute their strategy and how the BSC help to improve executive consensus and accountability, educating and communication, creating alignment and promoting transparency [12]. In Reference [3], Roswitha Poll shares a German project, according to finance, user, internal processes and potentials, it give the quality measures and "ten core data". The achievement of this project is a handbook including the software Library Audit.

III. METHOD

The four perspectives of the original BSC are no must. They represent the normal view of commercial institutions. The strength of the BSC is that it is flexible and can be adapted to various institutions and organizations. There can be other perspectives than the original ones [13]. According to the character in the library, the final object of library service is to meet users' information need. So the author adjusts the original evaluating model and devises five perspectives such as user, information resources, internal processes, finance and future. These five aspects also serve as the subfactor in the benchmark, subdividing which, the paper reference some existing positive results. For example, the finance perspective references the division of expenditure in "IFLA Global Library Statistics Project"; the information resources perspective draws lessons from The Library of Congress Strategic Plan 2008-2013; and the internal processes perspective uses LBS projects' achievement for reference. The selections of the third class indicators adopt Critical Incident Technology (CIT), which provides half-open questionnaire to the experts and ask them to select the most relevant indicators aligning with the above factor and write the lost ones they think more important. Then we classify and encode these collected data and readjust their construction and arrangement. In the benchmark, many metrics are from some successful criterions, such as ISO 2789:2006 or ISO 11620:2008 to advance the reliability and measurability.

IV. CONSTRUCTION

A. Review the library's statement

Reviewed the library's statement is to identify the key performance drivers that lead to successful strategy execution. Mission statements for library or university, institutional goals or "X-year" plans and conversations with top administration include the mission, vision or customer requirements of the library, which are the

places to look. By the analysis of these statements, the library will find what is real important and what are the institutions trying to accomplish. They are the important operations to take, the key measurements to assess and the main contributions to interpret the library's outcomes.

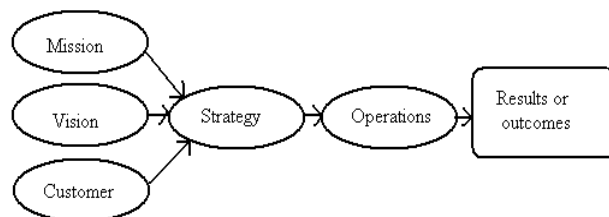


Figure 2. Process to analyse library statement [14]

B. Developing a strategy map

The strategy map is a visual tool for describing and communicating the organizations' strategies, which shows the cause-and-effect relationships of the strategy among the various perspectives and helps to develop a predictive model. The strategy map consists of two parts, the evaluation perspectives and their relationships. On the basis of the above discussion, the strategy map for library assessment in the paper covers five perspectives, which are user, information resources, internal processes, finance and the future. Each perspective has one strategic objective, and associated with four to eight or metrics, and each metric has a specific target, which is shown as Figure 3.

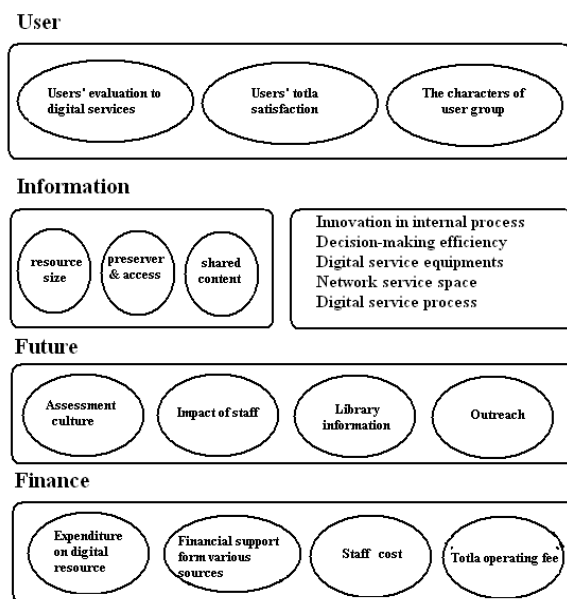


Figure 3. The strategy map of BSC in library assessment

There are Cause-and-Effect relationships among these five perspectives as Figure 4. As a non-profit organization, the library's responsibility is to provide more and better information resources and services to the

needed users. All its developments build on the financial support from the parent organization and some outside channels. With the allocation of fund, the library can increase the network capacity and improve the staff's skills, which indicate the potential for future development. The more network capacity can lower cycle time and reduce costs; and the librarians with advanced skills will reduce process steps and enhance the quality of resources. All these will shorten waiting time and increase users' satisfaction.

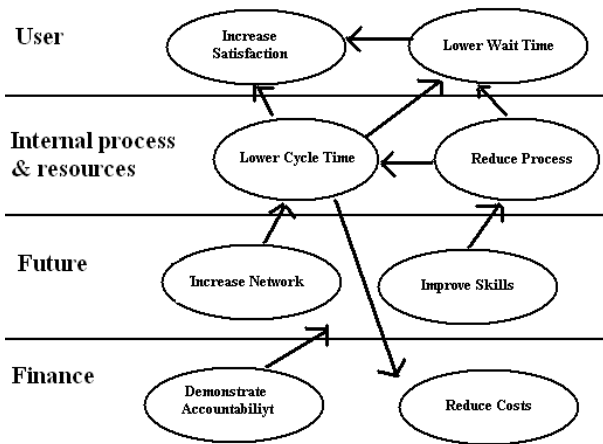


Figure 4. Cause-and-Effect relationships between strategy map [14]

C. Selecting Performance Measure

The performance measure includes two parts: the values of the library and translating values to metrics. As the analysis in Figure 2, we have decided the values of each perspective, and the next step needed to do is translating them into some metrics. The metrics contain three portions, such as indicators, target and methodology. The key principle when devising measurements is practical, which means that all the selected indicators should be specific and measurable. In order to limit the expense on money and human resources in library assessment, the library should better use the existing evaluation actions and the collected statistics data. When there aren't some ready-made measures, the library can use sample survey to get reliable information standing for the whole condition. Base on these principles, we stand our own benchmark about the library management evaluation in digital information age.

TABLE I. THE BENCHMARK FOR LIBRARY EVALUATION USED BSC

First class	Second class	Third class
A1 Finance	B1 Financial support from various channels	C1 The financial base through private donations and other external support
		C2 Library expenditures as a proportion of the parent organization expenditures
		C3 Grant for digital construction
B2 Expenditure	C4 Expenditure on digital resources as a proportion of total budget	

A2 Future	on content	C5 expense on the collection digitization
	B3 Staff cost	C6 Cost to train staff to improve their digital service skills
	B4 Operating expenditure	C7 Investment in information infrastructure
		C8 Cost per session for each digital service
	B5 Assessment culture	C9 Special departments for digitization
		C10 Job satisfaction
	B6 Impact of Staff Development	C11 Ethnic Diversity of staff
		C12 Tanning times of librarians
		C13 Staff trained as a percentage of total
		C14 New technologies identified in future
B7 Library information infrastructure	C15 Amount of computer devices	
	C16 Update of automated system	
	C17 Network bandwidth / speed in library	
	C18 Maximum concurrent users of network	
B8 Outreach	C19 Number of projects emphasizing digital resource and service	
	C20 Number of programs with other institutions that affect use of the Library	
A3 Internal Processes	B9 Decision-making efficiency	C21 Timeliness of policy decisions and implementation related digital construction
		C22 Frequency of reversals on digital construction policy
	B10 Service equipments	C23 Response to digital equipment requests
		C24 Reliability of key servers
	B11 Network service space	C25 Percentage of virtual visits of all visits
		C26 Library usability test
		C27 Access resources out of assigned area
	B12 Digital service progress	C28 Percentage of information requests submitted electronically
		C29 Numbers of catalogue by downloaded
		C30 Hours of online instruction
C31 Data size of OPAC access		
B13 Innovation in internal processes	C32 Percentage of digital reference	
	C33 Numbers of digital document delivery	
	C34 Numbers of new services	
B14 Efficiency	C35 Numbers of digitization projects joined	
	C36 Ad hoc committee for collaboration	
	C37 Waiting time for digital reference	
	C38 Turnaround time for document delivery	
A4 Resources	B15 Information resource size	C39 Maintenance and update of databases
		C40 Size of data storage
		C41 Increase of types of digital resources
	B16 Preservation and accessibility	C42 Completeness of digital collection
		C43 Digital access as a portion of total
		C44 Database log and content downloaded
	C45 Average search time	
	C46 Materials digitized for preservation	

A5 User	B17 Shared content stewardship	C47 Databases with permanent use
		C48 Volume of shared content
		C49 Agreements with cooperation
	B18 User group	C50 Level of participation in standards-development processes
		C51 Percentage of the population reached digital library services
	B19 Users' evaluation to digital resources & service	C52 Numbers of regular users reached by digital library services
		C53 Availability
		C54 Selection
		C55 Quality
		C56 Functionality
		C57 Time
	B20 Users' total satisfaction to the library	C58 Convenience
		C59 Price
		C60 Overall rating in user surveys
C61 Customer service rating in user surveys		
C62 Overall instruction rating in user education surveys		

The targets make the indicators to be measurable. Scholars give their suggestions from various angles. Many libraries set only one target for an indicator, such as Pierce County Library System, other library may have more targets for one. University of Virginia Library provides two sets of targets, Target 1 indicates complete success and Target 2 indicates partial success. It seems useful to allow for intermediate outcome, between total success and failure, and the targets must be challenging but not impossible. Robert W. Fernekes establishes four levels of targets: Slam-Dunk Targets, Cakewalk Targets, Reachable Targets and Stretch Targets [15]. These four have a progressive relation, and provide higher goals for the library to achieve, which will make for greater progress.

In the paper, we use the two level targets to demonstrate the evaluation process in Figure5.

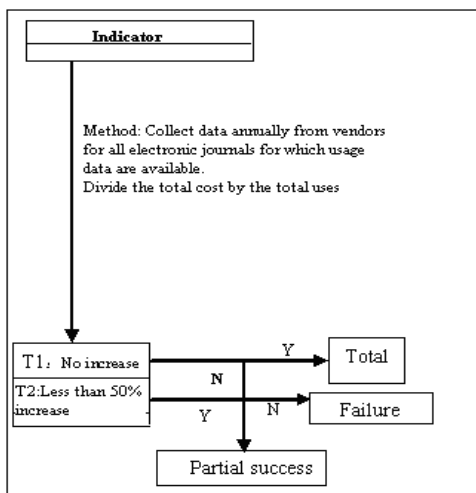


Figure 5. the evaluation process

V. CONCLUSION

The use of BSC in library assessment in China is in planning stage, the metrics are still not stable. There is

much work to obtain more stability for the process. There are some achievements for us to reference ARL "library scorecard initiative" has translated the library priority initiatives into 13 key objectives, and developed relevant measures of success. The BSC can also be used to change library management. It may reform tradition strategic management which means aligning plan & budget to optimize strategy execution, and make it become a strategy-focused organization that assigns and reallocates resources to support initiatives by cascading the scorecard to library departments or programming. To the results from the BSC evaluation, the library should disseminate them as far as possible by BSC result report, annual reports, library network and presentations. The results have great economic impact and social benefits, and to be the best proof of library's contributions.

ACKNOWLEDGMENT

This paper is the research result of the Key Program of Key Research Institute in Humanities and Social Sciences, which was supported by the Ministry of Education of P. R. China (Project Name: Library Management in Digital Information Age, Project No. 07JJD870221).

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