Implementation of Strategic Management Based on the Balanced Scorecard in a University Library

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Abstract

Purpose
The purpose of this paper is to present a case study of implementing strategic management as a process based on balanced scorecard (BSC) in the university library – G. Denysenko Scientific and Technical Library of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (KPI Library).

Design/methodology/approach
The author is regarding the features of all the strategic management implementation stages: strategic analysis, formulation of strategic ideas (vision, values and mission), the strategy definition and development, strategy implementation and realization, assessment and control of the strategy implementation. Special attention is focused on the comparison of the BSC model, which was used in KPI Library with classical BSC models for non-profit organizations developed by Robert Kaplan and David Norton, and Paul Niven. The author is also focusing on preparation of the strategic map and identifying specific indicators.

Findings
BSC is adaptive, flexible and adjusts to the environment of each particular library and can be used as an effective tool for the development of a strategic management system in libraries.

Originality/value
The case study of the library of Igor Sikorsky Kyiv Polytechnic Institute shows that a BSC is an effective tool for building a system of strategic management development aimed at radical organizational changes in the library. It is also a testing and practical implementation of some of the results of the study "Strategic Management of Library as a Process-Oriented Organization Based on a BSC," which is conducted by the author.

Keywords: Library management, Strategic management, Strategy map, Balanced scorecard, Library strategy, Strategic idea

Introduction

The balanced scorecard (BSC) was originally developed as an evaluation system for business efficiency by Kaplan and Norton (1992a). It was further developed by the same scientists and is widely used as a basis for strategic management, first for

commercial organizations (Kaplan and Norton, 1996), and after adaptations in the early 2000s, Kaplan (2001) and additions by Niven (2003) for non-profit and state institutions.

Libraries in many countries successfully use BSC as a strategic management tool, but in Ukraine it has not been used. That is why, before using it by KPI Library, we studied the experience of foreign libraries including German libraries represented in the publication Pool (2003), Portuguese higher education libraries (Melo *et al.*, 2008), UK libraries for liaison work presented by Corrall (2015), the Royal Library of Denmark described by Krarup (2003) the National Library of Scotland (Hunter, 2009), etc. The most successful use of BSC is in libraries of North America. It has been introduced in the libraries of different types and library consortia. For us, it is very important to study the experience of university libraries, which are presented in the works of Self (2003, 2004), Pathak (2006), Kyrillidou (2010), Lewis *et al.* (2011), Mengel and Lewis (2012), etc.

The successful use of BSC by foreign university libraries confirmed the correctness of this decision to choose BSC as a basis for the implementation of the strategic management of the KPI Library.

In the last two decades, many Ukrainian libraries built their activities in accordance with strategic plans and development strategy confirmed by a survey that was conducted by the author in 2016 (Brui, 2017a, b, c). However, the KPI Library was the first library in Ukraine which started implementation in its strategic component management system based on BSC in 2016. This process is testing and practical implementation of the research made by the author "Strategic Management of Library as a Process-Oriented Organization Based on a BSC."

The purpose of this paper is to document a two-year experience and features of the strategic management implementation as a continuous systematic process based on BSC in the KPI Library that can be used by other libraries.

Strategic management and balanced scorecard
Summarizing the definition of strategic management by various researchers including library and information science in her previous paper, the author offered the following definition of library strategic management: *Library Strategic Management is a guiding continuous process carried out in the context of strategic idea (vision, values, and mission) of the library based on human resources as the basis, directs the activities of the library to the needs of consumers (users), flexibly responds to the challenges of environment and conducts timely changes that allow the library to achieve competitive advantages. Strategic management is aimed at the success of the library in the long term and achieving set goals. (Brui, 2014, p. 126)*

This understanding of strategic management was the basis for its application in the KPI Library.
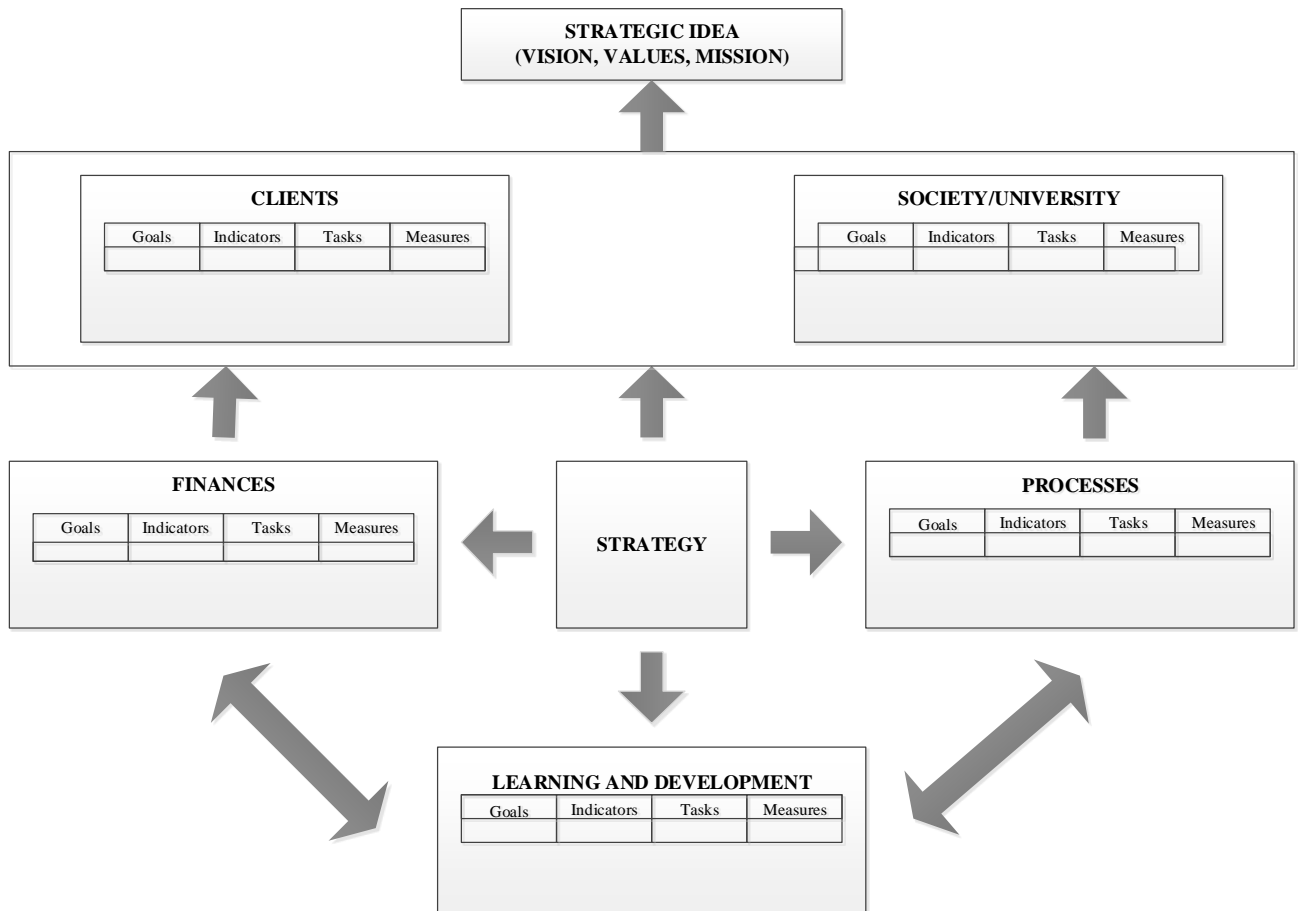
Figure 1 Balanced scorecard model used in the KPI library

In the library management system, as any other process-oriented organization, strategic management is a guiding process that directs all activities of the library implementation strategies to achieve these strategic objectives. As input to the strategic management process, we have information about the internal and external environment, resources (human, financial, technical and information) and a common initial vision as a vector of the library development. As output, we have successfully implemented strategic goals. As proposed earlier, the model of strategic management consists of five sub-processes: strategic analysis, formulation of the strategic idea, determination and development of strategy, implementation and realization of strategy, and assessment and control of the strategy implementation.

Analyzing the classical model of BSC and a model for non-profit organizations designed by Kaplan (2001) and Niven (2003) for use in state and non-profit organizations, and learning from the implementation of BSC in foreign libraries, we have used the model proposed by the author. This model consists of five

perspectives: society, clients, finance, basic processes, and learning and growth. These are different from the five sub-processes above. In the center of BSC, the library strategy is placed at the top – a strategic idea. BSC, strategy and all activities of the library aim to implement this strategic idea, although this model was also finalized by changing the name of perspectives, which once again confirms the flexibility and adaptability of BSC to the context of a particular library. The BSC model used in the KPI Library is presented in Figure 1 (Brui, 2015, p. 27).

This model shows that BSC as a basis for the library strategic management is an effective tool to communicate a strategic idea (vision, values and mission) to the daily work of librarians. BSC is directly involved in three of the five sub-processes of strategic management process: determination and development of strategy, implementation and realization of strategy, and assessment and control of the strategy implementation.

Thus KPI Library has been implementing the strategic management process based on this BSC model since March 2016.

Preparation for the strategic management implementation
The purpose of the KPI Library strategic management implementation is a complete redesign and transformation of the library as a system from functional to process-oriented organizational approach to be successful in the long run.

The initial vision of library radical changes was formulated by the library director and discussed at a general meeting of the library staff. This vision was the starting point for the further development and implementation of the KPI Library strategy. Later, after conducting the strategic analysis, this vision was refined and strategic idea (vision, values and mission) has been formulated. However, the essential positions still were: the KPI Library is a modern library of the modern university; the KPI Library is successful, flexible, responding to the needs and expectations of clients, and creates value for them; the KPI Library is a process-oriented system.

Strategic management as any other process has an "owner" who is responsible for the results of this process, and executors who directly carry out specific actions within it. Undoubtedly, the "owner" of strategic management in the KPI Library is the director and the performance of individual sub-processes includes other library staff. In the beginning, individual executors of the strategic management sub-processes were identified.

It was decided that the all sub-processes associated with the creation of library development strategy – "strategic analysis," "formulation of strategic idea" and "determination and development of strategy" – would be carried out by the working group. All interested librarians could enter the group. This strategic group was

formed in March 2016. It included the library director, two deputy directors, a research secretary, four department heads and ten librarians; in total, there were 18 people. After a certain rotation (someone left the group, others joined its work), the working group consisted of 20 people. Attracting a wide range of people who were not very familiar with strategizing influenced the extension of the strategy development term. However, we believe that this was the right approach. After all, if the strategy worked out and the changes initiated by the employees, they would be motivated and make more efforts to achieve the results. Strategic sessions were held regularly at least twice a week.

It was determined that the "implementation and realization of strategy" should involve all librarians and their daily activity was aimed precisely at this.

Sub-process "assessment and control of the strategy implementation" was basically carried out by workers newly created analytical and statistical subdivision of perspective development department. Monitoring, assessment and evaluation will be determined by indicators of BSC, which will be compared annually with the previous accomplishments. Decisions on changes in the strategy realization plan are approved by the strategic group. The library director does final control over the strategy implementation and reports it publicly.

The first few strategic sessions were devoted to familiarizing strategic group participants with modern approaches to the organization management and appropriate management tools. Learning was conducted by the library director. A number of trainings were conducted on the following topics: general library management system, strategic management, SWOT-analysis, PEST-analysis, product market evaluation, resource market evaluation, the scope of library activity, client range, strategic idea, and BSC and library development strategy.

Starting work on developing a new strategy for the KPI Library coincided with the attendance of the library Director Oksana Brui and Deputy Director Maryna Druchenko at Kyiv-Mohyla Business School on the program "Development Strategy for Librarians" in February–April 2016. It contributes to a better understanding of many aspects of strategic management and implementation of further changes in the KPI Library.

Strategic analysis
The strategic group began its work with the strategic analysis. To analyze the internal and external environment, we used some parts of SWOT-analysis, PEST-analysis and have done a resource market evaluation. Before carrying out any type of analysis the working group members re-examined the specific features of each applied tool.

The main strengths and weaknesses of the KPI Library, favorable and threatening external conditions were identified. The basic, necessary for successful strategy implementation, resources such as capital (money), human resource (labor), intangible resources, materials and equipment, and capital assets (the building) were analyzed. Particular attention was given to the world trends in the development of education and science, which, according to the working group will influence the development of the KPI library in the next five years: open science; open education; the key role of libraries for the ideas of open science and open education; intensive development and spread of information technology (including big data, internet of things, mobile technology, social networks); most of the library users belong to the "Digital Natives" and "Digital Citizen."

The KPI Library introduced the notion of the "client" in the organizational context for the first time. At the meeting of the working group we discussed the differences between the notions "reader," "user" and "client" of the library. The term "client" is applied to everyone whom the library offers certain products and added value.

The basic categories of the KPI Library clients and values that they are offered by the library to meet their needs were identified. The notion of the "key client" was identified. In a client range of the KPI Library, the following categories of clients were identified: partners; KPI administration; resource providers; student-researchers; professors-researchers; Ukrainian and foreign researchers outside the KPI; CEOs. The scope of the KPI library activity was determined. Professors-researchers were identified as key library clients. Clients who are after the "professors-researchers" in the client range also obtained added value from the library activities, but indirectly, and the library does not spend its resources for this.

The strategic analysis and defining the scope of library activity took about two months, March and April.

The formulation of strategic idea
An in-depth analysis determining the scope of the library activity, its clients and added value that the library creates for each of them contributed to awareness and clearer understanding and formulation of vision, values and mission by all participants of the strategic group.

Formulating of the KPI Library strategic idea occurred within two working group meetings in May 2016.

As a result, the following formulation of the strategic idea was included into the library development strategy:

Vision – what we want to be. The KPI Library is a process-oriented intellectual, communication, innovation center recognized by academic and professional communities. The KPI Library reacts flexibly to constantly changing needs and expectations of clients. Mission – why we exist – what do we do, for whom and how. In order to integrate the University into a global scientific and educational space, for researchers of the University, the KPI Library creates and develops a friendly environment, which provides researching, teaching, and learning through the quality of information support, servings and comfortable physical and virtual space.

Values – what we believe and what we focus on in achieving the goals and in our daily work: service and responsibility; openness and accessibility; feelings and respect; excellence and innovation. (Brui, Ed., 2016)

Interim results of the strategic group work – strategic analysis and strategic idea – were presented and discussed at a general meeting of library staff. There was a clear understanding that this strategic idea is crucial to set up and to transform the KPI library as a system. In particular, it is important for representing a picture of the desired future, understanding what is the primary product and value posed by the library staff, clients for whom they do it and in what way. A clear understanding and formulating the strategic idea helps each librarian to see their place and feel their importance, involvement and responsibility for achieving the results. This is the basis for building a new corporate culture of the library.
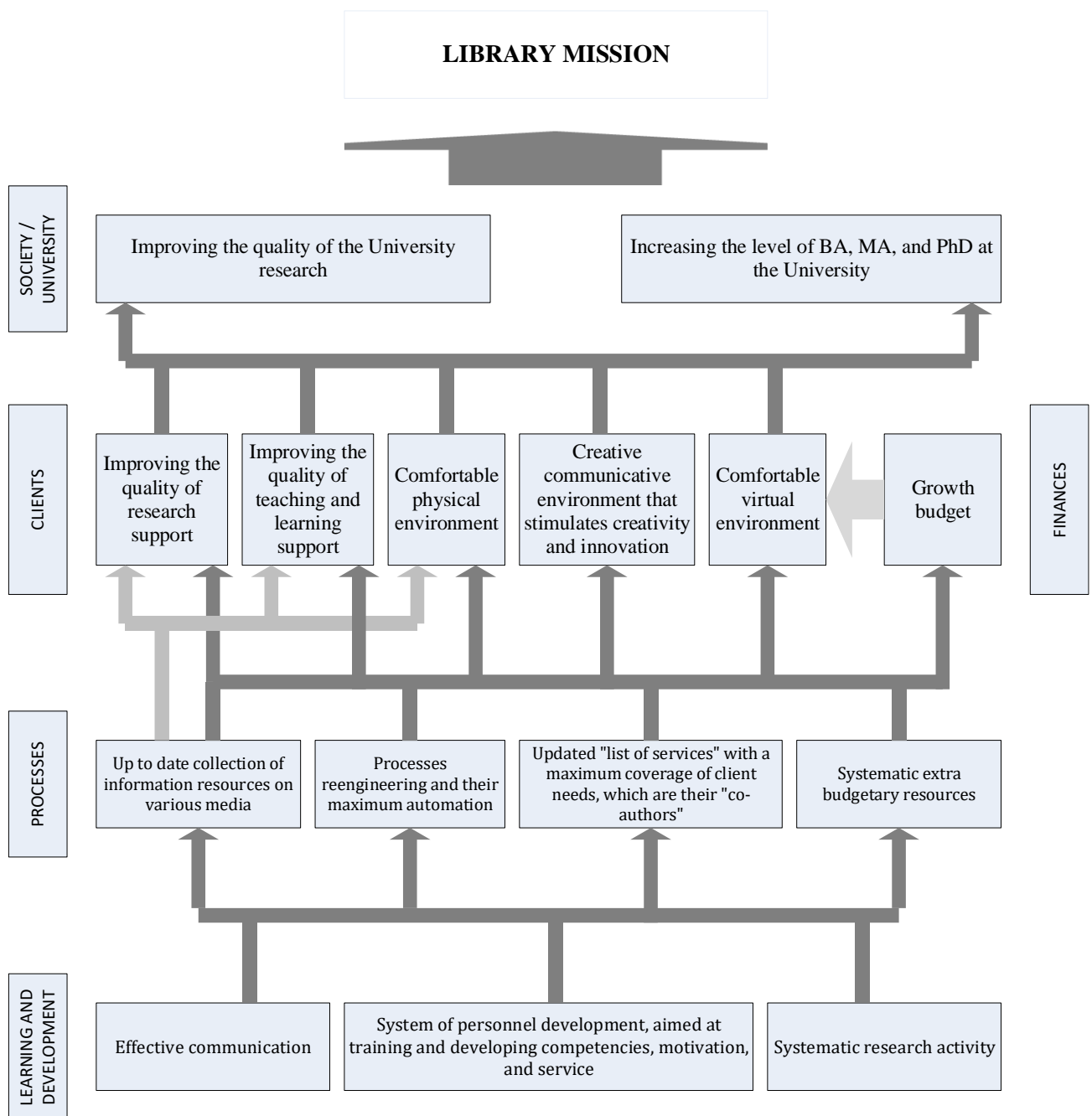
Determination and development of strategy
Library strategy developed in the context of the overall development strategy of Igor Sikorsky Kyiv Polytechnic Institute for the years 2012–2020 (2012) Yakymenko *et al.* (2012).

Sub-process "determination and development of strategy" has been divided into two sub-processes "strategy determination" and "development of strategy realization plan."

At the stage of the strategy determination strategic goals and initiatives (tasks) for its realization, indicators for monitoring and evaluating the results and a strategy map were defined. This used BSC as a strategic tool. This phase lasted more than four months, from May to September 2016.

The basis of the KPI Library strategic management is the BSC model, reviewed earlier and containing five strategic perspectives: society/university, clients, finances, processes, training and development.

LIBRARY MISSION

SOCIETY / UNIVERSITY

Improving the quality of the University research

Increasing the level of BA, MA, and PhD at the University

CLIENTS

Improving the quality of research support

Improving the quality of teaching and learning support

Comfortable physical environment

Creative communicative environment that stimulates creativity and innovation

Comfortable virtual environment

Growth budget

FINANCES

PROCESSES

Up to date collection of information resources on various media

Processes reengineering and their maximum automation

Updated "list of services" with a maximum coverage of client needs, which are their "co-authors"

Systematic extra budgetary resources

LEARNING AND DEVELOPMENT

Effective communication

System of personnel development, aimed at training and developing competencies, motivation, and service

Systematic research activity

Figure 2 Strategy map of the KPI library

For each of the perspectives, strategic goals have been identified. In the perspective "society/university" two strategic goals are defined: improving the quality of the University research; increasing the quality level of BA, MA, and PhD at the University. In the perspective "clients" five strategic goals are defined: improving the quality of research support; improving the quality of teaching and learning support; comfortable physical environment; comfortable virtual environment; creative communicative environment that stimulates creativity and innovation. In the perspective "finance" a strategic goal was set: growth budget sufficient for implementing library operational activities and innovation. In the perspective

"processes" four strategic goals are defined: processes reengineering and their maximum automation; updated "list of services" with a maximum coverage of client needs, which are their "co-authors"; up to date collection of information resources in various media; systematic extra budgetary resources for providing library core activities and innovation. In the perspective "training and development" three strategic objectives are identified: system of personnel development, aimed at training and developing competencies, motivation and service; effective communication; systematic scholarly activity of the library.

The relationship among strategic objectives was presented in a "strategy map." The "strategy map" as a strategic management tool was developed by Kaplan and Norton (2004). It should be noted that it is rather difficult to clearly articulate strategic objectives in the maximum short form (ten words) in order to reveal the nature of the goals, which would be understood by every employee of the library and arrange them so that the cause and effect relationships between them presented the logic of value creation and organization of the library as a system. Therefore, the strategy group has repeatedly returned to the "strategy map" and has made refinement and adjustments to it. The final version of the "strategy map," which was included in the strategy is presented in Figure 2 (Brui, Ed., 2016).

Specific initiatives/tasks to be done for achieving a particular goal were also identified. During the discussion, it appeared that there were some initiatives aimed at achieving more than one goal. In such cases, the initiative was assigned to each of the respective goals.

For each of the strategic goals were identified one or more indicators, which will determine the achievement of these goals. It was analyzed and observed that the indicators are as follows: "indicators–guardians"/"result indicators" (lag indicators), which display and measure the achievement of certain strategic goals, and "performance-drivers"/"process indicators" (lead indicators) interacting with other strategic goals and perspectives and influencing its lag indicators outcomes. It should be stated that 9 out of 15 goals have both types of indicators, 4 goals have only lag indicators and in 2 goals only lead indicators are defined. The relationship between indicators and strategic goals and impact of lead indicators caused wide discussion and became important for understanding the whole picture of the building of the library activity logic by the members of the strategic group. The financial indicator was determined only for the goal "growth budget": increasing percent in costs for improvements and innovations. For other purposes were used non-financial indicators. In many goals, there are observed indicators which reflect the annual growth of satisfaction in different customers' categories by library activities in general or in specific areas of activity. Identification of these indicators

can be based only on the survey. So, it was planned to develop a form of an online survey which was conducted at the end of the year.

#	Initiatives (Tasks)	Measures	Results	Indicators	Terms	Responsible
1	To design, implement and develop the project of electronic publishing of University books on an open publishing platform Open Monograph Press and to promote it to international scientific and scientometric databases	To design, project* of electronic publishing of University books on an open publishing platform Open Monograph Press	The project is ready for submission it to the grant programs and for representing it to University's administration and sponsors		2018	Head of Department of Education and Research Support
2		To implement a process of electronic publishing of University books on an open publishing platform Open Monograph Press	The process of electronic publishing monographs is sustainably working	Increasing the number of books issued on Open Monograph Press	2019-2020	Head of Department of Education and Research Support
3		To consult and train University researchers on the organization and promotion of electronic publication of books	Knowledgeable University researchers on efficient organization and promotion of electronic publication of books	Increasing the number of University electronic books in international scientific and scientometric databases	2019-2020	Head of Department of Education and Research Support

Table I An example of the strategic plan of the KPI library

Strategy map, strategic goals, initiatives and indicators also formed the basis of KPI Library development strategy for 2017–2020 years, the draft of which was presented to the university community on The Ukrainian National Libraries Day on September 30, 2016. The draft of the strategy was put at the KPI Library website, and spread via social networks. Therefore, after the presentation of the strategy, it held a broad discussion among the library employees. There were also comments and suggestions from students, faculty and university administration, which later

were taken into account for reviewing the document. In addition, this project had wide resonance in the professional library environment of Ukraine: discussion at the scientific and practical conference of university libraries in October 2017 and on social networks. We have received some requests from library managers to share our practices as an example for the development of strategies for their libraries.

From October to December 2016 the strategic group worked on initiatives/tasks and indicators formulation refinement to fit the specific strategic goals. Also it worked on a revising the system of indicators and preparation of the strategic plan.

For each indicator was determined the value and the initial count date. The initial count date for the majority of indicators has been chosen as the end of 2016.

The heads of corresponding library departments have been appointed responsible for tracking specific indicator value. The heads of separate library departments who are responsible for different strategic initiatives were involved in the process of transitioning the strategy into the level of strategic plan. The strategic plan for 2017–2020 years compiled in a form of table with the following positions: strategic perspective, goals, initiatives/tasks, measures, results of the measures, achievement results indicators, terms of the measures, responsible for carrying out measures. Examples are presented in Table I.

In January, February and March 2017 final clarification and approval of the strategy and the strategic plan by the university administration took place.

In April, Development Strategy of Scientific and Technical Library of Igor Sikorsky Kyiv Polytechnic Institute for 2017–2020 was published under Creative Commons license (BY-SA) 4.0 World. The electronic version of the strategy was hosted at the institutional repository of the University – ElAKPI Brui (2017c).

The strategy, as well as the strategic plan, was discussed not only at the strategic group meetings but also at special meetings with the heads of departments and with all library staff.

Implementation and realization of strategy
The strategic plan identified priority measures that should be implemented in order to achieve each of the strategic goals, and they became the basis of the library plan for 2017. This annual plan was developed by heads of departments with the help of the staff of the newly created analytical and statistical subdivision of perspective development department. The annual plans were discussed within each unit by its employees. These discussions have identified a clear understanding of the relationship of librarians' daily work with achieving specific strategic goals and therefore the success of the strategy.

It should be noted that certain steps and measures for the implementation of the strategy were launched in parallel with its development, immediately after the strategic analysis and the formulation of strategic idea were done.

Then, it was determined that the basis for the transformation of the library should become its redesign into the process-oriented system. Therefore, in May 2016, a working group of the reengineering of library processes was created, which includes the library administration and some members of the strategic group.

The following plan of initial measures to be taken before the end of 2016 was compiled: to determine the basic and providing processes of the upper level; to develop a new organizational structure of the library, which would maximum coincide with the specified processes; to develop new job requirements according to the required competencies; and to recruit workers to new library divisions.

It should be noted that most of the activities were carried out successfully. However, we failed to get all necessary staff positions, as this process continues in 2017.

The work on the implementation of other positions of the strategic plan began in 2017. Specific results for the determined indicators will be analyzed at the beginning of next year.

Assessment and control of the strategy implementation
As noted above, monitoring and assessing the strategy implementation is conducted by the employees of the analytical and statistical subdivision of perspective development department according to the defined system of indicators.

From October to December 2016, the original document in a tabular format that contains basic information about the indicators was created. This document will be the basis of the technical task for development of the system for assessment and evaluation of the processes and activities of the KPI Library. The main table fields are strategic perspective; strategic goal; lead Indicators; lag Indicators; indicator value … year; initial count data; the title of the statistics required to determine the indicator value; statistic value; responsible for providing statistics. Examples are presented in Table II.

Some of the indicator values were taken from the 2016 Annual Report of the Scientific and Technical Library of Igor Sikorsky Kyiv Polytechnic Institute[1].

In order to determine indicators that include "customer satisfaction level" the interviews were conducted. According to the survey indicators' correspondent values were determined and put into the table. For the remaining indicators, initial values will be made in early 2018, as the initial count date is the end of 2017.

Strategic Perspective "Finances"							
Goals	Title of Lead Indicators	Title of Lag Indicators	Indicator Value 2016	Initial Count Data	Title of Statistic Value	Statistic Value	Responsible
Growth budget (sufficient to finance current activities and innovation)	Annual increase of percent of expenses for improvement and innovation		10,50%	December, 31 in 2016	Total expenditure in definite year	1787911,71 (UA)	Library Director
					Total expenditure for improvement and innovation in certain year	187 300,00 (UA)	

Table II Strategic indicators for strategic perspective "Finances"

It is assumed that on the basis of fixed indicators at the beginning of each year in January and February, the analytical and statistical subdivision employees will make an analysis of the strategy implementation. Based on this analysis, the strategic group makes decisions on the need to correct the strategy itself and the strategic plan.

The library director manages the strategy implementation and presents the results to the library staff, the university administration and community as a public report.

Conclusions
In the KPI Library, the strategic management based on a BSC has been successfully implemented. This was the confirmation and approbation of a strategic management process model and a BSC model proposed in previous publications of the author for implementation in libraries.

In the KPI Library, the basic implementation of the strategic management based on BSC took ten months, from March to December 2016.

To achieve significant results, it is important to develop a strategy to attract librarians to, involve librarians and university community in the discussion process and strategy development, and get support from the university administration.

A clear formulation and understanding of a strategic idea (vision, values and mission) by the library staff is one of the key elements to transforming the library as a system and also for the development and successful implementation of the strategy.

Based on the foregoing, it is worth mentioning that BSC is an effective tool for implementing strategic management in general, and for the development and implementation of strategies aimed at conducting fundamental organizational change in libraries in particular. BSC is adaptive, flexible and adjusts to the environment of each particular library.

The KPI Library had a successful experience in the implementation of strategic management as a continuous process based on BSC including the development and implementation of strategy. It may be used by other libraries.

Note
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Further reading
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