EDUCATION AND SUSTAINABLE DEVELOPMENT

INNOVATION FACTORS IN BELGRADE UNIVERSITY LIBRARY SYSTEM

BILJANA STOSIC,[1]
ADAM SOFRONIJEVIC[2]

[1] Faculty of Organizational Sciences,
University of Belgrade, Serbia
[2] Belgrade University library,
University of Belgrade, Serbia

Abstract: The aim of this paper is to present research shedding some light on innovation factors identification and measurement in the University of Belgrade's library system by means of innovation questionnaire, since one of the main innovation management elements is to recognize and measure innovation factors of influence. In that sense, the key innovation factors important for this domain have been identified, based on selected research in the broader area of innovation management. Survey results give one of the rare insights in innovativeness level and characteristics in this important part of the nonprofit sector of a transition economy. In this specific case, that should be the prior investigation with the intention of helping managers to improve organization propensity to innovate and to define/reexamine innovation strategy. Research findings revealed that innovation factors measurement should be considered very important for ICT innovation management in the library system, and that further research would be necessary.

Introduction

Radical technological innovations which were taking place since the end of the 20th century are said to be the basic long-term competitiveness and economic growth factor creating new "high-tech" reality (Narayanan, 2001), "information and knowledge society", with domination of information and communication technologies - ICT. Innovation as the specific form of change and novelty presents a very extensive concept, which can be defined from different aspects - as the basic element of technological progress, economic growth and entrepreneurship, enabling the company to gain *competitive advantage* based on capability to realize successful innovation projects, and this should be considered as a widely accepted hypothesis, supported by a numerous research and literature (Tidd, Bessant, and Pavitt, 2001; Narayanan, 2001; Kleinknecht and Mohnen, 2002).

These innovations bring almost entirely new and different means of communication and business like Internet and e-business (Gunter, Day, and Shoemaker, 2000) and make a huge impact also on learning and education field (the most frequent example is that of e-learning benefit). Knowledge influence appears to be the central element of this new economy concept - numbered European studies concerning innovation policy and strategy define *knowledge-driven* economy as directly based on the production, distribution and use of knowledge and information as the key economic drivers (European Commision, 2004), which evidently raises the importance of innovations and innovativeness.

Concepts of innovation and innovativeness have been much developed during the previous decade, together with the development of innovation management (Stosic and Pekic, 2005). In European Commission's *Green Paper on Innovation* it is, among all, defined as the "the renewal and enlargement of the range of products and services and the associated markets; the establishment of new methods of production, supply and distribution; the introduction of changes in management, work organization, and the working conditions and skills of the workforce" (European Commission, 1995). Innovation presents a very wide concept, which can be defined in various fields, as Schumpeter defined it as the basic element of technological progress (OECD, 2005) and, later, Drucker, as the key element of entrepreneurship (Tidd, Bessant, and Pavitt, 2001).

Among numbered and various innovation definitions, one that describes how important this field is considered to be nowadays has been given in the guidelines for collecting and interpreting innovation data, well-known in the innovation field as the "Oslo Manual" - one of the basic OECD and Eurostat joint publications

establishing standards on innovation data and measurement (OECD, 2005). An expanded measurement framework has been provided in the 3rd edition (above all, recognizing the role of linkages between firms in the innovation process and giving more relevance to the service sector - less Rand D intensive industries), which is used as a global course for our survey. The focus of innovation researches has been primarily on profit organizations in the world leading economies, while nonprofit organizations, so far, have received relatively small attention. On the other side, it is more than evident that innovation in services is getting more interest, since services are becoming an increasingly important component of national and global economies.

Like most of its counterparts, University of Belgrade's library system is in a need of technology innovations application aiming at improving work process, but is relatively short of consistent policy and even adequate knowledge of factors affecting innovation in this specific area. University of Belgrade is one of the largest educational centers in the region of Southeast Europe and its library system supports the population of more then 75.000 academics and students. In defining Belgrade University library innovation questionnaire for this research, we have been following the basic innovation measurement framework outlined in the "Oslo Manual", with regards to numerous innovation surveys being implemented so far in different areas in exceptionally large number of countries - EU, OECD, non-OECD.

The brief structure of the paper is as follows. In the first part, it has been given theoretical background for the research - identifying the innovation types, innovation measurement and organization learning key aspects. In the next, shorter part of the paper, there have been given main characteristics of the library system where the survey has been implemented. The next section is related to the survey methodology and results, where descriptive statistics and statistical correlations with comments and explanations have been separately given. Finally, in the last section, the conclusions and implications of the research findings have been described, where it should be emphasized that this survey shows the necessity for further investigation in this very specific area.

Theoretical foreword

In the area of innovation factors and innovation measurement, one of the crucial questions discussed by different authors, is that of improving the possibilities to estimate different innovation factors with dominant qualitative nature in quantitative terms. Innovation is considered to be one of the main drivers of growth and development - for companies, industries and equally for entire economies. But the question remains on determinants of the innovative activities, innovation input/output of a company, or an economy. Generally, numerous relatively measurable determinants have been identified - for example Rand D expenditures, product design, patents, introduction of new products, sources of knowledge, reasons for innovating, strength of various appropriability mechanisms (Kleinknecht and Mohnen, 2002). On the other hand, innovativeness, i.e. the capacity to turn innovation inputs into innovation outputs (the latter, for instance, being estimated by the share of innovative products in a company's sales or by the number of patents issued), usually continues to be in the sphere of mystic (Hofmann, 2004).

Whatever the specific interpretation of innovation measurement features could be, the question still stands on the possibility to identify and select the right set of innovation factors of influence that will lead to valuable results in the concrete field of research. It has been already said that when selecting the optimal method for investigation concerning innovation factors in the domain of education and librarianship, the main concept evolved from CIS - Community Innovation Survey (EU) methodology, which was originally conducted every four years, resulting, above all, in numbered Trend Chart reports on innovation (European Comission, 2009). When analyzing the types of innovation involved in the surveys, for a long time innovation in manufacturing was prevailing (product innovation), while there was increasingly recognized the need to explore service innovation (Kanerva, Hollanders, and Arundel, 2006), which has been included as the explicit innovation type in the second edition of the "Oslo Manual" standard for innovation measurement (OECD, 1997). Finally, in the latest "Oslo" edition four types of innovation were distinguished: product/service, process, organization and marketing, where the latest has been actually introduced in the Manual for the first time (OECD, 2005). Therefore, the need for a serious innovation survey and analysis in this area should be recognized, considering identification of innovation indicators and possibilities for innovation measurement.

When identifying the key innovation types in this field, it should be useful to start from the factors affecting innovations in ICT as the key supporting tool for the most activities improving work process in the library - in the services field so-called "front-office" like Web page, call centre etc, and "back-office" applications - organization's internal operations that support or automate core and critical activities or processes and internal ICT management and development capabilities (OECD, 2005). In this field, it can be mainly found different research considering e-learning in the sense of developing models to facilitate or evaluate some aspects of it, or identifying and analyzing factors influencing knowledge creation and

innovation in the organization (Merx-Chermin and Nijhof, 2005). There can also be found research on relation between an organization's ICT competences and its ability to innovate, where qualitative research methodology and case studies for data collection have been used (Gordon and Tarafdar, 2007). It should be important to mention a very useful analysis of methodology, of results and research in the domain of innovation in the ICT sector i.e. ICT industry and service, given as the combination of academic insights and managerial implications (Huizenga, 2004). There are studies discussing organizational learning concept in Eastern Europe such as (Czeglédy, 1996), and even papers on ICT and organizational learning like (Janson, Cecez-Kecmanovic, and Zupancic, 2007). On the other hand, there can not be found much of the research in the domain of innovation factors/indicators and surveys implemented specifically in educational institutions and systems in line with aforementioned framework and manner.

Therefore we will partly ground this paper on analogies from other areas. We presented some of the papers we thought might be useful in future studies of innovation implementation in libraries and also needed to discuss the issues this paper will be dealing with. We also made a presentation of the overall knowledge in areas not directly concerning innovation as the main focus of our research and unlearning as an important aspect of innovation implementation discovered by the research. These two concepts will be detailed in the following part of this section.

Considering the aforesaid innovation typology, ICT application and diffusion is recognized to be either service or process innovation, depending on the concrete business function and organization. Acknowledging the need for fostering the speed of technology gap bridging and lack of hard evidence to support it, this paper presents an insight in applying innovations in the world of hardcore nonprofits in the transition economy of Serbia. For a long period, libraries used to be synonymous with nonprofit - noncompetitive management and business style. Management of radical organizational changes in profit sector is very well described in literature, one example being (Francis, Bessant, and Hobday, 2003). For nonprofits situation is somewhat different for it was almost unimaginable for them to go through radical changes in past. Today they will have to create such a competitive advantage that will allow them to attract patrons and on such terms that will be acceptable to those providing financing. Value creation in libraries needs to be examined possibly on the grounds for-profits exploits as in (Amit and Zott, 2001).

The spread of innovation from ICT domain to social domain is now evident and most clearly present in the rise of the Web 2.0 phenomenon. Therefore ICT related innovations represent a must for today's libraries. The focus of any research aiming at reveling important aspects of librarianship industry should be therefore pointed towards ICT innovation and their strategic aspects. Organizational learning consequently becomes a concept that has a growing importance for non-profits in general and librarians in particular. From the field of SMEs described in (Ruiz-Mercader, Meroño-Cerdan, and Sabater-Sanchez, 2006) some analogies can be drown. In libraries as well as in SMEs ICT might have a significant impact on outcomes only when a proper context of learning is in place. Library ICT systems research, an area that is in need of developing, might be grounded on basis of (Orlikowski and Baroudi, 1991). It also might be very useful to take a look at the user perspective toward libraries' electronic resources, especially in academic world i.e. university libraries with their websites and information services (Yong-Mi, 2011; Redden, 2010). Another area that is correlated to ICT innovation implementation in libraries and is in need of developing is case study research. For this area important paper that might ground some additional work is (Riege, 2003).

In one of the grounding papers for the concept of unlearning Prahalad and Bettis (1986) define unlearning as the "process by which firms eliminate old logics and make room for new ones". Inspired by another important author in this area Hedberg (1980), one might say that unlearning makes way for new responses and quote the mentioned book in which unlearning is defined as "a process through which learners discard knowledge", which can be, in a certain way, connected to well-known innovation theory concept of "creative destruction". In that sense, Magrath (1997) has also recognized the importance of unlearning. In (Lei, Slocum, and Pitts, 1999) role of unlearning in creating competitive advantage is stressed as well as the connection with the concept of relearning. The area of its applicability today is very wide as might be suggested by topics of (Cegarra-Navarro and Sanchez-Polo, 2007) or (Learmonth, 2007), but implementation in organizational change processes is an area that captures the most authors' attention as in Rampersard (2004).

Although significant investments in highly-developed economies are devoted to raise the level of the academic librarians' information literacy through instructions and learning, some challenges have been identified, especially having in mind the impact of economic downturn meaning financial stringency in university libraries (Nicholas et al., 2010). Library staff should identify instructional work as integral to their professional identity (Heidi and Shelagh, 2011). Importance of ICT innovation for change in libraries of today is evident and unlearning processes along with other activities characteristic for organizational learning might add to creation of advantage for

organization that foster them as described in (Mariotti, 1999). Although unlearning might be of utmost importance for innovation process as (Sherwood, 2000) suggests, it certainly is unavoidable item when speaking of ICT innovation as presented in (Sutter, 2005).

It is now certain that it has important role for ICT innovation implementation in Serbian libraries, as we will present in the second part of the paper. Having this in mind, it should be of great significance to identify innovation factors through employees' innovation attitude and opinion in this important area, which is the main idea of this research. Responses from 40 representative employees and managers were used to analyze relations between factors that predominantly define status of an employee in the system and his/her innovation attitude. Low level of correlation between certain attributes in research findings can be interpreted as a whistle-blower for the system. Responses also flagged unlearning process as an important aspect when considering ICT innovation implementation in this system.

Belgrade University Library System

Libraries play very important role in the modern education, but knowledge about process and people who work in libraries is not always available. As a profession that had very dynamic development in the last 15 years (Winston and Quinn, 2005), following the revolution in development of ICT, librarianship is heavily dependant on innovation today (Sadeh, 2007). This can well be recognized through the fact that education holds rather large part of the innovation literature (Virkus and Wood, 2004). The emergence of Web 2.0 likewise sets the trend for the next decade (Curran, Murray, and Christian, 2007). Therefore we propose a simple chain of reasoning: innovations are important for libraries, which are in turn important for education - thus awareness of innovations in libraries is of utmost importance for educational process as a whole. In the next part of the paper we will show that the organizational change in libraries should be in focus of library managers who aim to foster ICT innovation implementation in libraries.

Librarianship was on decline during nineties in Serbia but it regained some of its former importance in the last few years especially in connection to reforms in educational system of Serbia. These reforms push for modernization of educational process which includes putting libraries in a position of a cornerstone that provides scientific information needed for modern educational process. To match this expectation libraries have to change and implement ICT innovation, which was not the case during nineties due to lack of funds. First they have to catch up with fast moving wheel of

modern librarianship, which has been in some extent achieved, but more importantly they have to stay on top of innovative processes put in motion for it is the only way to respond to fast changing needs of their clients. Unlearning activities are important aspect of this process but should be foster in order to keep the momentum of change in all libraries of Belgrade University library system. System comprises of two parts, as of January 2008:

- University library "Svetozar Markovic", the central library institution of the University of Belgrade, at the same time supervising institution for all academic libraries in central Serbia,
- Number of smaller libraries organizationally attached to certain faculties and institutes of the University of Belgrade.

University libraries that are smaller and organizationally attached to certain faculties and institutes usually employ 2-4 librarians and are organic part of a larger academic institution. Financed by institution and managed by dean of faculty, they number 71 as of now, this number fluctuating in time with some libraries joining together and some new being created. In general terms these small libraries provides service for most of the students and lot of academics. In terms of ICT innovation implementation they have been following the lead of University library "Svetozar Markovic" with only some exceptions.

Survey methodology and results

Research has been conducted during February - March 2010 with 41 respondents taking part by filling out the questionnaire submitted to them by researcher in person. By submitting the questionnaire in person we got almost 100% responses with only two perspective respondents refusing to fill out the questionnaire.

Out of 41 respondents 21 were employees of University library and the rest were from smaller libraries. Respondents were picked out randomly from chosen group. Groups were designed so that employees from various departments of University library and from various groups of faculties were evenly represented. University library and smaller libraries employ 253 so the sample represents 16% of all employees thus being relevant. Three organizational units of University library were represented with 25%, 40% and 35% of respondents out of total number of employees.

The number of respondents is relatively higher in this part of the system because of the fact that University library employs rather higher percent of librarians out of total work force. Bearing that in mind we decided for such a sample knowing the librarians are of great importance for this research. Faculties of

University of Belgrade are divided into groups according to their scientific field of interest. Faculties of certain groups are being represented in this research evenly covering between 20% and 40% of institutions in certain group.

It can be said that some information can be obtained from individual questions, but, for the most of indicators, it is really the set of questions to be asked for enabling further statistical analysis, which can be said to be one of the key characteristics of this approach. Questionnaire consisted of two parts and some of its elements have been given in the Appendix. In the first part respondents were asked to give anonymous personal information (concerning work) about him/her and in the second part the quantification has been done in the way respondents valued statements on the scale ranging from -3 to +3 corresponding to total disagreement or total agreement.

It should be important to emphasize that the selection of the key question sets for indicators has been done according to principles from the "Oslo Manual", where different groups of indicators are defined depending on the innovation type (OECD, 2005). It should be also notified that the key orientation of the survey was to measure innovation *inputs*. Since the real situation in the system was as described earlier, there was a necessity to include factors concerning mostly *human resources* (whose attitude we believed to be critical in this case): incentives/obstacles, knowledge management (communication), innovation and knowledge (sources), adoption (learning/unlearning) and, one set of questions significantly connected with high-tech i.e. ICT introducing and implementation (investment). So, the final selection has been actually done according to the real system examined (for example, it was very important to include factors of incentives and motivation of respondents - employees), and this can be understood as some limitation on general level.

Again, these statements were divided into following five groups, roughly corresponding with innovation indicators, but also probing some other details like unlearning activities in libraries:

- incentives and performance measurement

- communications and organizational culture
- innovation sources
- unlearning process and innovation type
- investment in innovations and results measurement.

Within the each group 3-5 statements were designed to create an insight in a specific domain affecting innovative process. By valuing given statements respondents gave away their perspective of what is going on related to innovative process inside the University of Belgrade's library system. At the same time respondents filled out anonymous personal data like age, work experience, educational degree creating the possibility for valuating this type of data for innovative process.

Analysis of raw data that follows has been done using statistical software SPSS 13.0, and is separated into two categories: descriptive statistics of the first and second part of questionnaire, and statistical correlations within statements and between statements and other data.

Descriptive statistics

The global structure of the sample considering their educational level can be described as following: 32 out of 41 respondents have four years university degree, 2 have three years university degree and 7 have high school diploma. Thus, this sample is representative since it by large majority represents librarians' opinions about statements, but it also includes opinions of other library staff members and this is illustrated in Table 1.

Questionnaire also includes information about respondents' titles in Serbian librarian community. Three stage title system exists, as of now, in Serbian librarian community, consisting of librarians stuffing both public and special libraries: here, 29 respondents have the title of librarian, while 6 have the title of senior librarian and 6 have the highest ranking title of counselor librarian and this is illustrated in Table 1.

TABLE 1. POSITION AND TITLE OF RESPONDENTS

Educational degree	Four years university	Three years university	High school
	32	2	7
Title in serbian librarianship community	Librarian	Senior librarian	Counselor librarian
	29	6	6

16 respondents are librarians and 6 are other stuff members of University library, while 7 respondents are librarians and 3 are other stuff members of various smaller libraries. Also, 6

respondents are occupying managerial positions in smaller libraries and 3 in University library.

Respondents are clustered into four age groups starting with the age group of those between 25 and 35 which numbers 6, followed by age groups of those between 35 and 45 and those between 45 and 55 numbering 16 and 10 respectively, and concluding with 9 respondents which are older than 55.

TABLE 2. WORK EXPERIENCE
OF RESPONDENTS

Years	Total work experience	Working at library
Less then 5	2	12
5 - 13	15	13
13-21	10	12
21-29	5	2
More then 29	9	2

Respondents are, also, clustered into five groups according to the years of total work experience and years they spent working in library, and this is illustrated in Table 2.

Descriptive statistics of individual statements are interesting since agreeing or disagreeing with certain statement is subjective therefore offering an insight in librarian's real individual opinions. In area of unlearning process respondents were almost unanimous in agreeing that it would be easier for them to adapt to the new way of doing business if the old style was discarded altogether, which in some libraries of the system is not the case. Only two respondents were negative about this statement. On the same lines more then 80% of respondents agreed that it was confusing to have new things done alongside the old ones which was the case in most libraries for at least some time. Both statements are detailed in Table 3.

TABLE 3. UNLEARNING PROCESS IN BELGRADE UNIVERSITY LIBRARY SYSTEM

	It would be easier for me to adapt to the new way of doing business if the old style was discarded altogether.	It was confusing to have new things done alongside the old ones.
Totally disagree	1	2
Disagree	0	2
Neutral	1	4
Agree	32	21
Totally agree	7	12

FIGURE 1. RESPONDENTS' OPINIONS ABOUT THE STATEMENT "RESULTS OF ONE'S WORK ARE MEASURED IN ORGANIZED MANNER IN OUR ORGANIZATION"
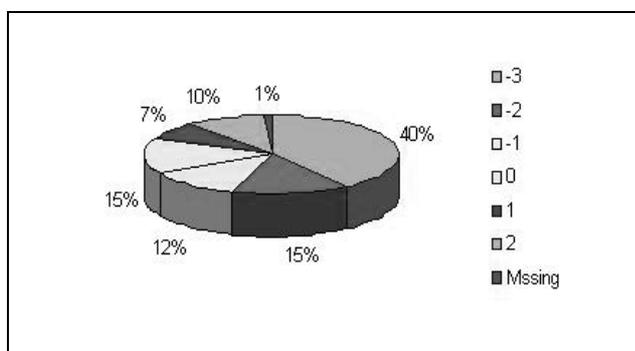
FIGURE 2. RESPONDENTS' OPINIONS ABOUT THE STATEMENT "OUR ORGANIZATION IS INFORMED ENOUGH ABOUT NEW TECHNOLOGIES AND NEW CONCEPTS IN LIBRARIANSHIP"
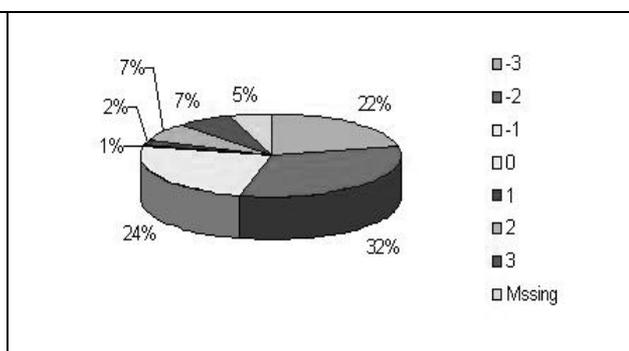
Majority of respondents agreed that unlearning was important for them in facilitating transition to new way of doing business meaning implementing ICT innovation. By creating favorable conditions for unlearning activities management could foster implementation of ICT innovation. Knowing

this we may label unlearning, as strategic aspect for strategic decision of management should be fostering of organizational culture and organizational structure that favors unlearning process.

85 % of respondents are negative about sheer existence of informal system of incentives for

those who are innovative. In direct talks with libraries management we discovered that no formal system of incentives for those who are innovative exists. To match this only three respondents think that there is one.

As shown in Figure 1, only 17% of respondents think that results of their work are measured in organized manner, although management wouldn't agree on this one in one-on-one interview with researcher.

On the other hand 78% of respondents think positive about statement that their organization is informed enough about new technologies and librarianship concepts, as shown in Figure 2.

On the statement that management is willing and has enough time to listen to employees' proposals about innovations of work process, half of respondents have positive and half has negative opinion leaving us to think about reasons for such inconclusiveness. Only one respondent has negative opinion on statement that disconnection of modern ICT would seriously damage their business communications showing real or imaginary need for email and other Internet related communications.

Sources of ideas that trigger innovation are various according to this survey. Half of respondents believe that ideas comes from outside of organization, 65% think they come from employees with specific knowledge, 52% believe they come from organizational effort to learn about new technologies and half believe that they come straight from management. For each category of innovation ideas' sources listed in consecutive statements there is at least 50% majority that thinks positive in some degree about them being main source of ideas for innovation.

Reasons for this should be further investigated. Influence of innovation, that have been implemented so far, on process of work is somewhat clouded in minds of respondents since half of them positively in some degree support statement that these innovations radically changed the way they work, but also half of them think their influence was incremental. After a crosstabulation analysis showed these statements were not related we conclude either there is complete disagreement among respondents on how work process in reality works, which influence their judgment on nature of innovations implemented, or there is a disagreement on effectiveness of innovations implemented and their influence on work process. Either of these being true a further research is crucial if any future innovation is to succeed in this area.

Only 12% of respondents think positively about statement that resources invested in innovations are appropriate. Only one respondent think that management should not invest more in innovation if sources of investment are donations and externally financed projects. On the other hand 51% of respondents are negative about the statement that more resources should be committed to innovation even on behalf of salary founds.

10% of respondents think positively about existence of measurement system that evaluates results of innovations implemented. Great majority of respondents, 75.6% of them, think that although no measurement exits, innovations implemented so far had positive effect on business, which is illustrated by a column graph - Figure 3.

FIGURE 3. RESPONDENTS' OPINIONS ABOUT THE STATEMENT "OUTPUTS OF INNOVATIONS IMPLEMENTED ARE NOT MEASURED BUT I BELIEVE INNOVATIONS HAD POSITIVE IMPACT ON OUR BUSINESS"

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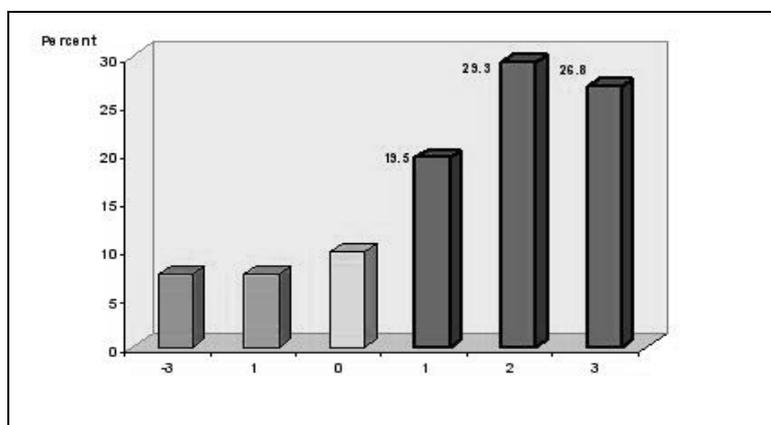
Statistical correlations

Dependence of statements is examined by means of contingency tables in SPSS. Pearson's Chi-Square (p) test was used to determine if certain statements are correlated - dependent by testing following proposed hypotheses:

H_0: statements compared are not dependent (no correlation);

H_1: statements compared are dependent (statisticaly significant correlation).

For low values of importance level of Asymp.Sig., hypothesis H_1 is accepted meaning that statements are dependent - statistically significant ($p<0.5$).

We tried to establish correlations between statements and data form the first part of questionnaire. It turned out that no connection whatsoever exists. For example we were very surprised to find out that no correlation exists between the age of respondents and statement that business communication would be hampered very seriously if one would not use modern ICT to communicate. Asymp. Sig. R value of .956 is calculated leaving no doubt that agreement or disagreement with this statement is by no means connected to the age of respondent, as given in Table 4.

TABLE 4. CROSS TABULATION CHI-SQUARE TESTS

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.193(a)	9	.956
Likelihood Ratio	3.442	9	.944
Linear-by-Linear Association	.770	1	.380
N of Valid Cases	39		

Cross tabulation of all other data with this statement gave similar results. Work experience, in library and total, education and title is not connected in any way with this statement. Similar results were discovered when we tried to establish relations between other statements and personal data from the first part of questionnaire. We concluded that attitude and reasoning about innovative processes of University of Belgrade's library system stuff has nothing to do with respondents' data that are otherwise very important for her/his position in this system. We conclude further research is needed if one is to know relations connecting stuff members' characteristics and innovation process variables.

In order to validate results of research and make sure respondents filled out questionnaire sensibly we did crosstabulation of statements that are known from other sources to be true. One principle was followed: if one of the statements isproven to be true from other sources and H_1 is accepted - than we know that subjective valuation of respondents of other statement is valid.

We know from organization's documents and interviews with managers that no formal system of rewarding innovativeness exists and we also know from the same sources that no consistent method for work results measurement exists. Having in mind sample size, cross tabulation of given statements gives Likelihood Ratio of .095, which indicates that statements are connected - significant, as illustrated in Table 5.

Since we know the objective state of affairs we conclude that questionnaire was filled out carefully and subjective view of respondents are, in fact, very objective. In the same manner we can match some other statements for example *type of novelty* OECD classification, (OECD, 2005) - the first claiming that innovations implemented were new for this organization but not for the others - with the other claiming that the innovations implemented were not implemented in no other organization before.

TABLE 5. CROSS TABULATION CHI-SQUARE TESTS

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47.882(a)	25	.004
Likelihood Ratio	34.641	25	.095
Linear-by-Linear Association	13.779	1	.000
N of Valid Cases	40		

TABLE 6. CROSS TABULATION ABOUT REWARDING
SYSTEM AND RESOURCES COMMITTED

		Formal system of rewarding new ideas and creativity exists in our organization						Total
		-3	-2	-1	0	1	2	
I think enough resources are committed in innovational processes in our organization	-3	18	3	0	0	0	1	22
	-2	4	2	0	0	0	0	6
	-1	2	1	1	0	0	0	4
	0	1	0	0	2	0	1	4
	1	1	0	0	0	0	0	1
	2	0	1	0	0	1	0	2
	3	0	0	0	2	0	0	2
Total		26	7	1	4	1	2	41

TABLE 7. CROSS TABULATION CHI-SQUARE TESTS

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	68.228(a)	30	.000
Likelihood Ratio	41.579	30	.078
Linear-by-Linear Association	12.281	1	.000
N of Valid Cases	41		

The same logic can be applied for validating results of statement of which we have no prior knowledge. We couple one such a statement with one of which we know objectively if it is true or false. If statements are correlated than respondents' opinion about second statement must be valid. Cross tabulations of two such statements are given in Table 6. and Table 7.

Knowing there is no formal system of rewarding new ideas and creativity, which is also the most of respondent's opinion, we acknowledge their estimation about inadequate resources being committed to innovative processes in organization as being valid.

The same principle yields results in proving that no informal system for rewarding innovativeness of employees exists; that work results are not systematically measured; not enough resources are invested in implementation of innovations; innovations already implemented are useful for work process improvement; more resources gained from donations and externally funded projects should be invested in innovations.

This being said we conclusively determined that further research is needed in this area because innovations are necessity in librarianship today and only managers who are well aware of forces driving their stuff innovativeness are able to successfully implement new ideas and new solutions.

Conclusion and implications

The objective of this study is to identify selected innovation indicators and apply them in educational field on the example of Belgrade University Library System, throughout an innovation questionnaire and statistical analysis of answers, which allows to make relations between different statements of the questions posed, thus giving a complex innovation qualitative measure i.e. insight in the system involved. In conducting our research we discovered that unlearning could be labeled as an important strategic aspect of ICT innovation implementation process, which we, actually, considered was a very interesting finding on the innovation adoption part. The other important result we got was unexpected nonexistence of correlation between innovation indicators and

statistical data important for individual employee's status in organization.

Since innovation is often not directly measurable in its nature, innovation indicators frequently represent indirect measurement tools (Grupp, 2007). Therefore measurement of innovation in some situations can not be realized but as a complex and constructed of couple of elements, so that well-known innovation indicators such as nature of innovation, source of innovation, innovation expenditures and incentives are incorporated in different questions. Values of Pearson correlation coefficient, which turned out not to be statistically significant, hampered our effort to draw an expected consistent conclusion out of the research findings, but demonstrated us that obviously the nature and sources of innovation in this system is complex and can not be determined in connection to data accessible in this research.

We can connect these results with the fact that we didn't have a homogenous group of innovation experts to respond to the formulated questionnaire, but the sample structured to represent the real system, with quite various knowledge and information on innovation processes in education today. We can assume that unlike potential panel of innovation experts, individual respondents would not have appropriate knowledge and sensitivity concerning defined statements - so, finally, we can say that these results appear not to be too surprising. What can be real surprise are the results of cross-analysis of some respondents' data; above all, educational degree and position in the system in relation to implementing innovation should be logically highly correlated, but, as we commented earlier in the paper, this was not the case.

It can be said that these results present a strong case for further research in this area, meaning that it would be necessary to determine the real nature of innovation indicators in this system while present research should be a guideline in which way future researchers should look. Our main recommendation for future research would be to execute further survey of each innovation indicator and to include broader range of statistical data of individual respondents. Other prong of research should be connected with unlearning process since it is clearly of certain importance for the system ability to change. Future research should try to connect the quality and quantity of unlearning activities with speed and of ICT innovation implementation and results it produced in area of organizational culture.

Innovation is a complex process and innovation indicators give us useful insight in some aspects of this process. Only sum of innovation indicators enables us to understand relations and processes that turn the resource knowledge into commercial products and services (Hamdani, Bord, 2001). Librarianship in Serbia can be considered still to be in an inadequate position and in lack of serious research. Results presented in this paper show how far the answers are in this field and how deficiently further research is needed. Not only that the sum of innovation indicators is unknown in this system, but unknown are the individual indicators as well. Having in mind present state of innovation indicators investigation and measurement in educational field in Serbia, there can be no doubt that this paper offers one of the rare insights in the innovativeness world of Serbian librarians, pointing out how unexplored and unknown this world is.

Generally, connecting innovation factors recognizing and measurement with the degree of innovativeness should be of vital importance for innovation management in the organization (this can be said to be equally important even on economy level, where innovation surveys are most frequently done). In this specific case, it should be the prior investigation that will help managers to improve organization propensity to innovate and to define/reexamine innovation strategy, and that is of crucial importance in the global innovative environment. As said before, managers should use this approach and results as an innovation management tool that will help them in the process of strategic decision-making, especially in the domain of innovation incentives.

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