



## New Approaches in Selection and Evaluation of Electronic Resources

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### Review Article

#### ARTICLE INFORMATION

##### Article history:

Received 24 May 2019

Received in revised form 23 October 2019

Accepted 25 November 2019

Available online 30 November 2019

*Journal of Balkan Libraries Union*

*Vol. 6, No. 1, pp. 12-19, 2019.*

#### ABSTRACT

In the early years of 2000, academic libraries used to transfer nearly 16% of their purchase budget to electronic resources which have been begun to be used commonly from the middle of the 1990's whereas today it is clear that they transfer more than 90% of their budget. The selection and evaluation process of electronic resources have become much more important either due to the increasing budget spared for electronic resources or because of the tightening budgets of the libraries. In the light of the facts mentioned above, within the scope of the study, the issues to be taken into consideration throughout subscription process of the electronic resources, which has begun to gain speed since the beginning of 2000's in our country, are specified. Within this framework, as well as focusing particularly on access models for the electronic resources, issues to be paid attention such as scope, content, functionality, cost, publisher support, licensing and technical requirements are also addressed. Primary requirements and approaches regarding the evaluation process are specified, as well.

**Keywords:** Electronic publishing, Electronic resources, Selection of the e-resources, Evaluation of the e-resources, Managing the e-resources.

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### I. Introduction

It is seen that increasing costs and decreases in library budgets have directed the libraries to the electronic resources. When considering the historical process, the first electronic journals had been introduced to the users in the early 1980s (Curtis, Scheschy, and Tarango 2000, p. 7). It is seen that the number of electronic publication has increased together with the developments in the technology and the widespread use of the internet since 1990s. According to Tripathi and Jeevan (2013), 96.1 % of the journals on science, technology and medicine and 86.5 % of the journals on arts, human and social sciences are still available as online. Neal (1996, p. 76) predicted in the mid-1990s, that the increase on the library budgets would divide the 50% of that budget into the electronic resources within 10 years. It is observed that this prediction was realized in 2008. According to ARL statistical data for 2008, while ARL member libraries transfer 50% of their budgets to electronic resources (Atılğan and Yalçın, 2009, p. 771) and today, this ratio has reached 90% (ARL, 2018). Similar to ARL data, Carrico (2011) states that university and research libraries allocate budgets to electronic resources between 70-90%.

However, libraries in developing countries have difficulty in subscribing to electronic resources due to financial barriers (Asamoah-Hassan, 2014).

Parallel with ARL and Carrico, the most of the budgets of university and research libraries in our country belong to electronic publications. However, both the limitation of library budgets and upward movements in exchange rates can leave the libraries in a difficult position due to the fact that the charging of the electronic resources is applied in terms of the exchange rate. According to the data of T.R. Central Bank, it has been seen that 1 USD was 2,34 TL on January 2, 2015; but it increased to 5,92 TL on April 26, 2019 (Central Bank, 2019). Even though there is 152 % increase in dollar rate, the shrinkage in library budgets shows that the selection and evaluation of the electronic resources have become more important.

### II. Related Work

When both national and international literature about the selection and evaluation of the electronic resources have been examined; Al and Al (2003) mentioned the selection criteria of electronic information resources and provided some recommendations to the libraries about accessing the electronic resources; and Atılğan and Yalçın (2009) analyzed the selection and evaluation of electronic

resources in Ankara and Baskent Universities. Gürdal and Kafalı Can (2017) have detailed which criteria has been used to select and evaluate the resources in IYTE (Izmir Institute of Technology) library and they have declared that 95% of the purchase budget belongs to electronic resources.

When foreign literature is examined thoroughly, it has been cited within the studies carried out by Sutton (2013) Texas University that a metrical combination of electronic resources has been developed by also including scope, content, usage, user requirements and feedbacks. Based on this metrical combination, an emphasis is laid on operation of the selection and evaluation process of the electronic resources. In study based on the data acquired from Consortium of Academic and Research Libraries in Ghana (CARLGH), Tetteh (2018) underlines that the selection and evaluation process of the electronic resources have become more significant than ever due to constant rise in subscription fee, financial limits and high foreign exchange rate causing the institutions to have difficulty in paying subscription fee.

As it can be understood from the studies addressed above, rise in subscription fees, tightening library budgets and instable foreign exchange rates have urged libraries either in our country or in many other countries to seek for alternatives. Within this frame, academic libraries have focused on new approaches and methods for the selection and evaluation process of the electronic resources in order to ease the restraint on the budget caused by particularly electronic publishing.

### **III. The Aim and Method of the Study**

The main aim of the study is to evaluate the criteria applied to the selection and evaluation of electronic resources from the 2000s up to the present day and to offer suggestions for new approaches. Both domestic and foreign literature has been reviewed on the basis of this aim; and different samples from different countries have been included in the evaluation process. Furthermore, the access to electronic resources has started to gain importance since the beginning of 2000s in our country; so ANKOS and ULAKBIM applications have been based on the study with the selection and evaluation criteria conducted by Baskent University between 2000-2009; the applications of Izmir University have been included to the scope of the study between 2009-2016. Dogus University was included to the study between 2017-2019. A literature review was conducted about the application abroad and the obtained findings were detailed. Moreover, the data on the accuracy of the issues in the study were controlled from different lists (ULAKBIM, ANKOS, etc.).

### **IV. Access Models to Electronic Resources**

Electronic resources are generally defined as materials that can be accessed via personal computers, servers or mobile devices. It is possible to classify these resources, which are accessed via internet, as follows (Johnson, Evensen, Gelfand, Lammers, Sipe and Zilper, 2012):

- E-books

- E-journals
- Full text (provided from publishers or third party publishers) databases
- Index and summary databases
- Reference databases (biographies, dictionaries, directories, encyclopedias, etc.)
- Numerical and statistical databases
- E-images
- E-audiovisual materials

Electronic sources are inherently different from printed sources. These features can be detailed in the following format Curtis, 2000, s. 14; Chan, 1999, s. 12; Wells, 1997; Moret, 1997; Chandra, 2002; Yalçın, 2006):

- (Access to electronic resources regardless of time and space is possible)
- It is possible to access some issues in the electronic journals that are forgotten within the body without being printed in print.
- Easy to update, integrate and manage
- It has a more flexible structure than paper.
- Easy to copy, reproduce and distribute
- Increases user satisfaction,
- Saves time and Money
- Tracking online users is possible

Electronic resources have become a type of material for which libraries today spare the highest rate in their budget to acquire knowledge anymore. For this reason, it has become more important to pay attention for the selection and evaluation process of the electronic resources. Today, libraries have access to electronic resources - regardless of their type or format- through three main models (Yalçın, 2006; Atılğan and Yalçın, 2009):

- Individual Subscription
- Subscription via Consortium
- National License Agreements

### **V. Individual Subscription**

It is publishing model through publishing houses or intermediary firms in case any subscription cannot be provided under the consortium or national license agreements of institutions. Within the scope of this model, electronic resources (book, magazines, etc.) can be provided as individual subscriptions or packages. However, it should be noted that corporate magazine subscriptions may be more costly than printed magazine subscriptions (Montgomery and King, 2002). It is possible to detail the issues that must be considered before the individual subscription as follows (Yalçın, 2016):

- The database should be opened to trial access for a certain period of time after an extensive research is done before the subscription. User interface /admin should be examined in detail during the trial access.
- The user statistics should be examined in detail at the end of the trial access. Furthermore, the opinion about the database that is available for end-user should be noted together with the statistics.
- The opinion of the library should be formed in the framework of the obtained data and the price offer

should be taken from the publisher/ intermediary firm.

- It will be useful to check the previous price information from the institutions which subscribed to the electronic sources after taking the price offer because firms can offer different price due to the marketing strategies. To determine the subscription costs of other institutions will strengthen the library during the deal.
- Many firms can request that their subscription costs remain anonymous under the trade title. It is important to develop the library cooperation in order to prevent such situations.
- Each publishing houses / intermediary firms have different marketing techniques. That's why; each should develop different deal strategies.
- As a result, self-control is essential to postpone the electronic subscription in case that an unreasonable price is offered.

## VI. Subscription via Consortium

The consortium is the organization that is established by two or more persons, institutions organizations or states by bringing their own resources together to achieve a common aim and participate in a common activity. Consortium, which are established by at least two independent libraries and/or library systems in the framework of legal agreements and resource sharing, include some services such as common collection development, loaning between libraries, creation of collective lists and common purchasing by changing the activity areas in terms of the nature of consortium (Yalçın, 2016).

It is noteworthy that subscription processes have started to spread in parallel with the development in both internet and technological fields since the beginning of 90s via consortium. In this context, The Consortium of University Research (CURL) was established in 1992 in order to increase the interest of universities with research support in the UK and to provide the advantage of consortium agreements made with the electronic product seller of the members. In the following period, initiatives like Distributed National Electronic Resources and NESLI: The National Electronic Site Licensing Initiative has been implemented. While the consortium studies have continued to increase since the beginning of the 2000s, it is clear that international consortium has started to emerge together with the national one. SELL (Southern European Libraries Link) established in 2001 is one of the international consortiums (Lindley, 2002, p. 85-86; Yalçın, 2009; Yalçın, 2006).

In Turkey, these studies have been started with the signing of an agreement prepared by Ebsco in order to but two common databases for 1999 between a state and three private libraries on the eve of the third millennium. The development of consortium started in the following year that seven state universities had participated to Ebsco agreement for 2000 with National Academic Network and Information Center (ULAKBIM) and nine institutions had agreed with Academic Press for IDEAL and twelve institutions had subscribed with MathSciNet (Karasözen and Lindley, 2019). The process, which started in 2000

with the subscription of twelve member institutions to three databases, has become a large voluntary community, a consortium and a professional unity that has 1,628 agreements with 83 different databases of over 60 publishers, 155 member universities and research institutions and nearly 50 workers (ANKOS, 2019). As mentioned above, it is possible to detail both advantages and disadvantages of consortiums that have importance in our country and in the world as follows.

## VII. Advantages

- Access to a lot of electronic resources at low cost,
- Regular use of funds,
- Ease of use of digital libraries,
- Cost sharing in technology and education,
- Storage in electronic journals, elimination of rack problems,
- Small budget universities can subscribe to more favorable terms,
- Consortiums eliminate certain issues such as licensing and preservations of subscribed electronic resources that cannot be dealt with by a single library.

## VIII. Disadvantages

- No copies of electronic journals,
- Requires staff training in the procurement and service of electronic resources,
- Consortia initially requires information technology and licensing investments,
- Copyright issues,
- Insufficient bandwidth and network width, insecure telecommunication connections,
- Archiving difficulties,
- Internet access difficulties,
- Users are accustomed to printed resources, difficulty in getting used to electronic resources,
- Reduction of bargaining power in some cases.

## IX. Pricing Models in Consortiums

Although pricing in consortium has differentiated in the database, the common pricing models are listed below.<sup>1</sup>

- Printed + Online
- Only Electronic
- FTE (Full Time Equivalent) Subscription
- Subject Area FTE
- Cost Sharing (for whole country)

## X. Printed + Online

The publishers have determined a holding based pricing policy in order not to lose revenue from the printed magazine subscriptions and they have not let the cancellation of printed subscriptions in the period where electronic resources have occurred. Pricing has been

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<sup>1</sup> Data on pricing models was compiled from the shares of Baskent University Izmir University and Dogus University's experiences and lists.

defined as printed magazine subscriptions + online access. Moreover, electronic access cost has been applied to the institutions which have not enough printed magazines for subscription under the consortium. On the basis of the criticism and demands from the institutions and the development of electronic publishing, publishers agreed to transfer printed subscriptions to the electronic model. However, publishers, which could not want to give up their profits, had offered to pay 90% of the amount paid for the printed subscription in order to use electronic model. As a result, the winner was publisher and the loser was library.

Debates have been started within the consortium in holding-based structure. In particular, the universities, which have paid high amounts for printed subscription, have started to request that some holding costs should be shared by the consortium members in order to avoid the cost burden. These requests have been applied day by day. Many universities in our country could not reveal the required reaction for such developments which are completely against the consortium logic. Yalçın (2006, p. 88) has stated that "In accordance with the license agreement signed in 2001, which is the beginning of Elsevier ScienceDirect Database Subscription, institutions have accessed all electronic journals providing that they pay 10% of their printed subscriptions. In 2002, the share paid for electronic license has increased from 9,50 % to 30,36% because of the amendment in the agreement". Despite the signing of a three year license agreement in 2001, license agreement was canceled in 2002 and a new three year license agreement was conducted.

#### **XI. Only Electronic Model**

In contrast to the printed + online model, while some publishers are pricing their subscriptions, it is the model that subscription is provided for electronic access fee which is determined without any printed obligation to the institutions with printed subscriptions. Today, many databases provide only electronic access.

#### **XII. FTE (Full Time Equivalent) Subscription Model**

Today, FTE subscription model is one of the most widely used pricing models for both consortium and individual subscriptions. In this model, pricing is made on the basis of the intervals determined by the number of academic staff, undergraduate and graduate students in universities or research institutions. This pricing has two important disadvantages. These are as follows:

- Since the education language of the universities providing education at the undergraduate level in our country is mainly in Turkish, the group which will never use it causes the prices paid by the universities to increase.
- It is clear that the band intervals determined by FTE numbers are not real. For instance, many databases accept 28.000 and over as the top band. However, the number of FTE student in many universities in our country varies between 30 and 70 thousand. This is an obstacle for fair distribution of price. In fact, it is useful to reconsider not only the top band

but also the other band intervals. In general, FTE band intervals have been determined as 1-1500, 1501-8000, 8001-17000, 17001-28000, and 28001 and over.

#### **XIII. Subject Area FTE**

The concept of Area FTE has been used more frequently in recent years in order to reduce the problems. Area FTE is used in pricing of specific databases for a certain area. However, not all databases have implemented this model. It is important to pay attention to these issues during the deal process.

#### **XIV. Cost Sharing (for whole country)**

Cost sharing is a model that has been implemented recently in terms of whole country. Under this model, the publishers determine a total cost on a country basis and this cost is shared among the consortium members. In this model, usage statistics have been used effectively in the process of determining corporate subscription prices. In addition, statistics are used to determine the subscription costs in the prices called as flat fees together with FTE numbers. In this model, the applications for sharing the holding loads under normalization can be challenge to low budget institutions. Therefore, "flat fee" should be reconsidered.

#### **XV. National License Agreements**

National License agreements are a model that has been implemented by many countries to eliminate inequalities in research and development activities of low-budget institutions. In 2005, TÜBİTAK ULAKBİM EKUAL project was initiated in order to ensure effective and widespread access to academic information sources of our country and to enable the production of national and international scientific publications. In accordance with the decision of the Scientific Committee of TÜBİTAK dated 19.11.2005 and numbered 136, the subscription studies had been started under the National Academic License of Electronic Resources in 2006 and the state, the foundation, the TRNC Universities and the Police Academy have been included. In accordance with the decision of the Scientific Committee of TÜBİTAK dated 11.02.2006 and numbered 139, the project scope has been developed to include Training and Research Hospitals under the Ministry of Health. In this way, it is aimed to enable the production of scientific knowledge production in our country by creating equal opportunity in the access of the researchers in the universities and the Training and Research Hospitals to international scientific and academic content. As of 2019;

- 281 institutions, including 218 universities, 3 Public Research Institutions and 59 Training and Research Hospitals, TUBITAK and its institutions are included in the national academic license;
- TÜBİTAK ULAKBİM EKUAL including 12 academic full text, 1 evidence based and 2 citation databases, 2 plagiarism analysis program, 1 reference management system and 1 thesis database, is available for members.

- 30,484 full-text academic journals, more than 87 million bibliographical records, more than 2.5 million international conference proceedings within the 1,220 conference series, and 3,341 standards are accessible in the country.
- Within the scope of TÜBİTAK ULAKBİM EKUAL Project, nearly 5 million users, including undergraduate students, benefit from databases with international academic content (EKUAL, 2019).

In the selection of electronic resources, new criteria should be added to the nature of the materials, apart from the traditional practices related to the development. Furthermore, complex issues related to access to the electronic resources increase the role of the librarian responsible for the selection of these resources. All provide to increase the importance of using selection criteria to help ensure the right resources among the electronic resources that have different characteristics in terms of access, scope and environment. In parallel with this increasing importance, the selection and evaluation of electronic resources should be considered in terms of scope, content, functionality, cost, publisher support, license, technical specifications.

#### **XVI. Scope**

Some issues related to which subjects and disciplines are involved, the extent to which the fields are concentrated, the types of both information and sources should be examined while detailing the electronic resources. Moreover, the source needs to meet the requirements of the user group. In addition to this, issues such as whether journals in collections with full-text journals are peer-reviewed, how impact factor rate is, and whether they are indexed by internationally important index / abstracts have become important (Yalçın, 2009, p. 784).

#### **XVII. Content**

Libraries that try to serve with scarce resources need to make maximum efforts to support the education programs in the selection of the electronic resources and to include the databases that will meet the needs of the users in their collections in our country. The issues mentioned above on the selection of databases should be taken into consideration.

- The electronic resource should be unique and reliable (reputable, scientific and peer-reviewed publishing house).
- There should be no embargoed publication (if the membership of a package called a third party is to be made, it should be ensured that the number of embargoed magazines is as low as possible and the embargoed period is short).
- Observations about open Access should be taken into consideration.
- Updates should be done in time.
- The previous access to articles should be considered.

#### **XVIII. Functionality**

The usage characteristics and functionality must be useful for the expectations in order to achieve the highest level of efficiency from the databases provided the subscription. Even if the database is sufficient in terms of content, it may not be possible to get the desired efficiency when it is weak in terms of functionality. It should be better to consider the details below in order to prevent such surprises.

- The interface should be user-friendly, easy accessible and intuitive (educational documents, introductory displays, context-sensitive help, customization options, search history, etc.), and it should preferably be consistent with other interfaces currently in use.
- The search software should be powerful, flexible and user-friendly (keyword and Boolean search, full text search, abbreviation, advanced search, thesaurus, and sort by relevance, search history, etc.)
- It should be indexed in discovery tools for fast and reliable access to content.
- The reference, full text links and other resource integration should be supported.
- It should support the export options of results and articles (e-mail, print, save, download, etc.).
- It should allow transferring to bibliographic management systems such as Endnote, RefWorks and Mendeley.
- It should have the appropriate capacity and network to support the most useful response times for multiple users' searches (Gürdal and Kafalı Can, 2017).

#### **XIX. Cost**

Considering the fact that libraries devote more than 90 of their budgets to electronic resources, it is important to examine the factors affecting the costs in detail. In this context, the following issues should be examined about costs in subscription processes (Yalçın, 2006).

- Is there an additional charge for history access?
- Is there any user limitation?
- What is the annual price increase? (In particular, the increase in the annual exchange rate in the database should be limited or not to be done at all).
- In which model will be used for database pricing?

#### **XX. Publisher (Supplier) Support**

Publisher should provide some support before or after the subscription process. It is possible to sort these supports as follows:

- The database must be open to trial before the subscription or demonstration can be performed.
- Customer service and technical support should be provided in time without any mistake.
- Personnel training should be provided at the beginning or later if requested.
- Prior notice should be given on content, platform changes and service breakdown.
- Customizations can be made if necessary; and

permanent URLs, bibliographic records and other metadata should be provided in the format that is preferred by librarians.

- MARC records should be provided.
- Usage statistics / admin information should be provided. COUNTER is preferred.

### **XXI. Licensing**

When libraries decide to purchase electronic resources, they sign a license agreement with the seller or manufacturer to determine the limitations and permits for the use of the resource. The concept of license agreements plays an important role in providing electronic resources to the library and the access to the user. It is possible to detail the factors that are considered in the agreements as follows. (Metz, 2000, p. 719; Atılğan and Yalçın; 2006; Yalçın, 2009; Gürdal and Kafalı Can, 2017):

- The Turkish National Site License (TRNSL) determines the conditions under ANKOS will conduct the electronic bulk purchase negotiations for education purpose on behalf of the Turkish university and research libraries, which are members of the consortium. In this context, TRNSL should be conducted in the process of both individual and consortium subscriptions.
- It is important to introduce what will be done in case of dispute and which courts will be authorized.
- After the end of the license agreement, it should be noted that whether there is substance for electronic access to the subscribed content.
- Long-term protection should be taken under guarantee. In this context, digital protection services like LOCKSS (Lots of Copies Keep Stuff Safe) and Portico or open-source archiving system should be controlled whether there is an agreement or not.

### **XXII. Technical requirements**

Subscribed databases should adapt quickly to the evolving technologies of the day. It is useful to consider the following details during the subscription process together with the developing technologies of the day.

- It cannot have any limitation for remote access.
- User privacy measures must be taken.
- It must be conducted in different platforms.
- It must have appropriate interface and remote access methods for mobile applications.

### **XXIII. Evaluation Criteria of Electronic Resources**

Today, the budget for electronic resources has reached 90%, and the evaluation after subscription has gained importance as well as the selection of electronic resources due to the relative decrease in library budgets and the increase in foreign exchange rates.

Although user statistics have been used in the evaluation of electronic resources, it is clear that user statistics are not enough alone. In this context, with the user statistics, the following points should be taken into consideration with user statistics in the evaluation process.

#### **a. User Statistics**

User statistics are considered as the most common evaluation criteria recently.  $BM = \text{Annual subscription cost} / \text{Annual total usage}$  formula is used in calculation of unit cost. One of the main problems that occur in the evaluation studies is what would be the acceptable annual unit cost. Although the unit cost is usually \$ 2 in many studies, it is recommended that the unit cost is considered to be a critical point for cancellation.

#### **b. Satisfaction**

User satisfaction has gained importance day by day. For this reason, studies should be carried out for measuring the user satisfaction for the databases that has unit cost in the critical values mentioned above. If user satisfaction is at the top level, the cancellation decision must be reviewed.

#### **c. Contribution to Institution Output**

In the scope of the evaluation of the electronic resources, the impact of the electronic resources on institutional outputs (Publication, Project, etc) should be taken into consideration. In this framework, studies should be conducted to determine the effectiveness of subscriber electronic resources on the outputs obtained by establishing broadcast monitoring commissions and the findings should be included in the evaluation process.

### **XXIV. Conclusion and Suggestions**

Changing conditions and advances in technology have deeply affected library services. The system, which was set up on acquiring knowledge until 2000's, has today left its crown to an approach based on accessing the knowledge anymore. With this change, libraries have begun to transfer more than 90 % of their purchase budgets into electronic resources. Due to their tightening budgets along with their increasing costs, it has become quite significant for them to consider and adopt new approaches through evaluation and selection process of electronic resources regarding the recently changing conditions together with classical methods. Accordingly, it is an inevitable fact that those libraries which are delayed to catch up with recent changes will most probably have problems and difficulties in meeting the needs of library users who are seeking knowledge and it thus would be helpful to take the following issues into consideration for in terms of evaluation and selection process of electronic resources:

- Before subscription, types of subscription should be examined elaborately regarding the electronic resource.
- Before subscribing the electronic resource, it should be determined whether it contains a publication with embargo or not. It should also be considered that the embargo date is valid up to 5 years for the third party database.
- Before subscription, the electronic resource should be open to trial access and the statistics should be investigated meticulously. Besides, user demands should be compiled and included in the evaluation process together with the statistics.

- If a subscription to an electronic resource is provided through personal subscription, the subscription fees applied by the other universities should be figured out and the bargain process should certainly be carried out in accordance with the acquired data.
- The annual rises imposed on electronic resources should be limited at most up to 4 % taking the conditions of the country into consideration (during economic crisis, this rise should be set to zero and even discounts should be carried out in definite proportions).
- On FTE based subscriptions, especially education language emphasis should be brought into the forefront as well as focusing on field FTE applications.
- FTE band spaces should be re-examined and must be brought into an equitable form.
- Precautions should be taken in order to protect those institutions whose library budgets are low regarding the cost sharing in terms of cost sharing model applications according to sum of the country.
- Institutions should put a serious effort in carrying out a process in both personal and consortium subscriptions based on TRNSL.
- Within the process of evaluating the electronic resources, issues such as user pleasure, its contribution to institutional printout and altmetric should be taken into consideration as well as usage statistics.

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