

# Framework of Journal Aggregator in Indonesia

Irawan Afrianto

*Dept. of Informatics Engineering  
Universitas Komputer Indonesia  
Bandung, Indonesia  
irawan.afrianto@mail.unikom.ac.id*

Sufa Atin

*Dept. of Informatics Engineering  
Universitas Komputer Indonesia  
Bandung, Indonesia  
sufaatin@email.unikom.ac.id*

Lia Warlina

*Dept. of Urban & Regional Planning  
Universitas Komputer Indonesia  
Bandung, Indonesia  
lia.warlina@email.unikom.ac.id*

Andri Heryandi

*Dept. of Informatics Engineering  
Universitas Komputer Indonesia  
Bandung, Indonesia  
andri.heryandi@email.uniok.ac.id*

**Abstract**— The objectives of this research are to build an interface system between authors with journal managers and to produce an integrated system of management the journals. Method in building journal aggregator framework is by observation and interviews to the authors, readers and journal managers. We collaborate with Association of Higher Education in Informatics and Computer Science or *Asosiasi Perguruan Tinggi Informatika dan Ilmu Komputer (Aptikom)* West Java Province to conduct the survey. There were 400 lecturers and 20 journal managers as respondents. The result show that journal managers face difficulty in finding authors, articles and in promoting the journals; and the authors feel more difficult to search, select and sort journal that match their fields. We performed system analysis and designed interface system. The interface can search, mark as favorite and interact or transact between author and journal manager. There are differences between journal aggregator and the systems that have been developed in Indonesia such as Indonesia One Search (IOS) and Indonesian Scientific Journal Database (ISJD). The differences are in coverage, search engine and transaction. The advantage of journal aggregator is the existence of transactions between authors with the journal manager in sending the abstract to be assessed and published.

**Keywords**— *Framework, Aggregator, Journal Aggregator*

## I. INTRODUCTION

Scientific journals are an important source of information for science and technology. Scientific journals consist of a collection of articles published periodically, written by scientists and researchers to publish their latest research result. Therefore, the continuity of scientific journals becomes very important for the development of science and technology. Indonesia Institute of Sciences recorded the number of journals and article in 2017 were 14,252 journals and 368,019 articles. The data is presented by the Indonesian Scientific Journal Database (ISJD) at <http://isjd.pdii.lipi.go.id/>. This data is based on the International Standard Serial Number (ISSN)[1]. While *Garba Rujukan Digital* (GARUDA) or Digital Reference Gateway stated that the number of Journals and article were 5.059 and 560,841 respectively. Garuda is a powerful resource platform for discovery of scholarly publications in Indonesia managed by Ministry of Research, Technology and Higher Education of the Republic of Indonesia [2]. There are differences in ISJD and Garuda data, since ISJD is

based on International Standard Serial Number (ISSN), while Garuda is a database for journals within Ministry of Research, Technology and Higher Education of the Republic of Indonesia.

Most online journal publishers in Indonesia apply Open journal system (OJS) that developed by Public Knowledge Project. One of the advantages of OJS is the existence of interoperability facilities that make the portal easy to harvest data. So that the visibility and accessibility of journals can be more easily and broadly effect on the improvement of citation and impact factor of the journal [3].

Due to the variety and numerous of journals, it should be easier for researchers/ authors to publish articles in the journal. In fact, authors feel more difficult to search, select and sort journals that match their fields. Likewise, lack of information about frequency of publication, author guideline, focus and scope of the journal become problems for potential authors. Therefore, we proposed a solution by developing a Journal Aggregator system. Journals aggregators is a tool to gather researchers/ writers of papers and journal manager.

Aggregator can be various forms in the electronic or digital era. There are three aggregator classifications. First type is that focusing on providing host (content host). Second type is indexing or categorizing content differently from other content (the gateway). The third type is the traditional aggregators licensed on full text content (full text aggregator)[4].

The most widely used aggregator is news aggregator. Some research indicates the existence of news aggregator is detrimental to the original news site. Survey results show that newspapers or news websites are in a state of concern. Newspapers become depend on Facebook and google (on search and news). News aggregator lowers traffic from newspaper sites but increases news article traffic. In the end the user will ignore the original source [5]. The closure of google news reduces news consumption by 20% and decreases the view of other publishers by 10%. This also lowers the view on breaking news, hard news and unfavorable news [6]. However, news aggregators such as the Financial Times and The Wall Street Journal have successfully charged consumers [7].

Europeana is a library aggregator in Europe that is an organization that collects metadata from a group of content providers and distributes it. This aggregator collects material

from individual organizations then standardizes file and metadata format and distributes metadata to Europeana according to SOP. This aggregator also supports content providers in terms of administratorisation, operations and training [8]. The same aggregator in Europe for the field of culture is the Italian Culture. Culture Italia is a national aggregator that manages culture in Italy. This cultural manager covers all sectors at the local, regional and national levels. The aggregator portal manages 2.4 million meta data from 32 private and public partners including thematic aggregators such as Italian-owned Internet Culturale library [9].

Digital Content aggregators appearing on multiple platforms are concerned about policy makers in the threat of incentives for original content production. A study was conducted to see the likely effect of a content aggregator on a particular platform encouraging users to skim on the content or investigate the depth of the content. Policy maker is under consideration to require platform aggregator digital content to provide an explicit "opt-in" for content provider in Europe [10].

Some libraries in Indonesia have used aggregator to facilitate librarians in universities. Aggregator as tool to add information in library collections from various websites. Other roles of aggregators for library collections include: (a) to facilitate the user in accessing the collection without open some websites; (b) to form a positive image for the library; and (c) data entry processing to help librarians in updating references or collections [11].

The purpose of this research is to design a framework of journal aggregator. The objectives of the research are (1) to build an interface system between researcher / author of a paper with journals managed by the manager of the journal, which can: (a) Facilitate the researchers / writers in searching and viewing journals in accordance with their scientific fields, discussion and journal transactions; (b) Facilitate journal manager in promoting their journals and getting potential researchers / authors; (2) to produce an integrated system of management the journals for researchers/ authors and journal manager.

## II. METHOD

Method used in framework of aggregator journals in Indonesia have several stages. The stages are problem formulation and literature study, data collection, analysis and data processing, then system modeling. In formulating the problem, we reviewed problems faced by the authors, readers, and journal managers. In this stage, a literature study of scientific journal problems in Indonesia is conducted.

The next step is the collection of primary and secondary data. Primary data obtained by direct observation and interviews to the authors, readers and journal managers. These activities were conducted in several months in June to September 2016. We collaborated with Association of Higher Education in Informatics and Computer Science or *Asosiasi Perguruan Tinggi Informatika dan Ilmu Komputer* (Aptikom) West Java Province to conduct the survey. There were 400 lecturers and 20 journal managers as respondents.

After we obtained the information, then we performed analysis and data processing. The data obtained is the

material in the system modeling. Next stage we created a framework for journal aggregator.

## III. RESULTS AND DISCUSSION

### A. Data Analysis

We conducted interviews and discussions with journal manager and the authors. We also identified and observed the journal sample and journal management system, Table I showed the result of data analysis.

TABLE I. RESULT OF DATA ANALYSIS

No	Data Collection	Object	Result
1	Interview, discussion	Journal Manager	<ul style="list-style-type: none"> <li>• Difficulty finding writers / researchers</li> <li>• Difficulty finding papers for publication</li> <li>• The absence of media to promote his journal</li> </ul>
		Writer/ researcher	<ul style="list-style-type: none"> <li>• Access to many online journals</li> <li>• Different journal profiles</li> </ul>
2	Identification	Journal sample	<ul style="list-style-type: none"> <li>• Journal format</li> <li>• Journal identity</li> </ul>
3	Observation	Journal management systems (online)	<ul style="list-style-type: none"> <li>• Functions that exist on the system</li> <li>• Users</li> <li>• How to use the system</li> </ul>

### B. System Analysis

We developed web-based journals aggregator with the concept of a site portal. Therefore, users must be connected to the internet to access journal aggregator portal. Users that interact with the system consists of four types i.e. system administrator, journal manager, writer / researcher and the public (visitors). System administrator has the authority to perform the management of master data such as managing data colleges/ universities, categories, journal managers and authors. While the journal manager acts as a user in charge of managing journal profiles, invites authors, administrators the abstracts submitted by author and provides information related to the journals. Researchers / writers can search for journals that their interest, published schedule and they can upload abstracts and favorite journals of choice. While the public can access the system to search for journals, authors and papers/ articles in the journal aggregator system (Fig. 1).

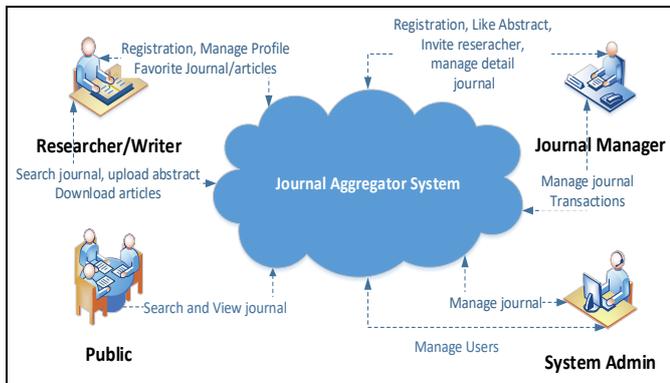


Fig.1. System Architecture of Journal Aggregator

The technology used to develop journal aggregator system is a dynamic web technology, and a framework to facilitate the development of its portal. The server database is used to store data of journal aggregator system. The web services, Application Programming Interface (API) and Rich Site Summary (RS) technology are used to link the journals aggregator with open journals system (OJS), google scholar, and Open Archive Initiative (OAI) so that data in the aggregator about the researchers and journal information will be completed. Fig. 2 shows technology architecture in journal aggregator.

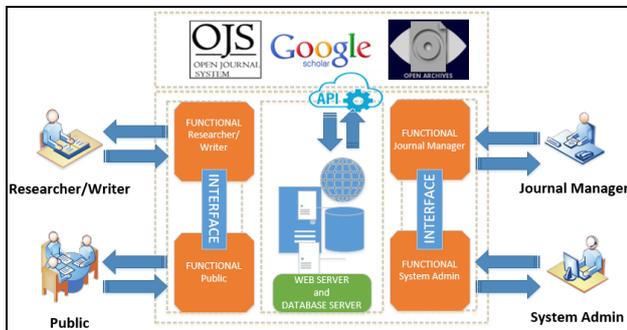


Fig.2. Technology Architecture of Journal Aggregator.

Database analysis used in developing journal aggregator is entity and attribute models, and IDEF1X diagrams to show relationships between entities. Fig. 3 shows the entity relation diagram.

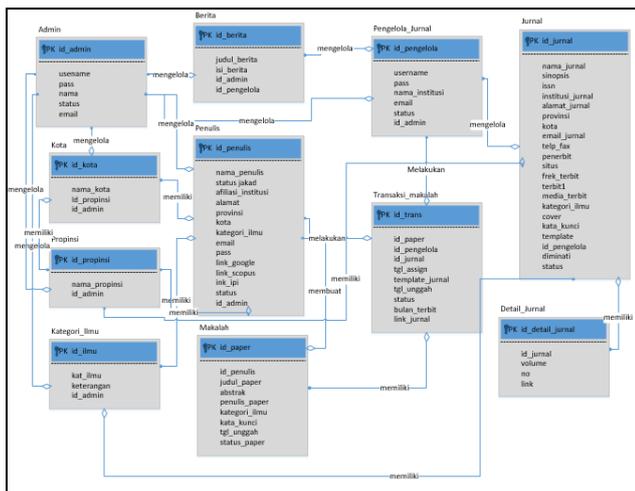


Fig.3. Entity Relation Diagram.

Use case diagram is applied to define an overview of the journal aggregator, so that the users can understand the system. Fig. 4 shows the use case diagram of journal aggregator.

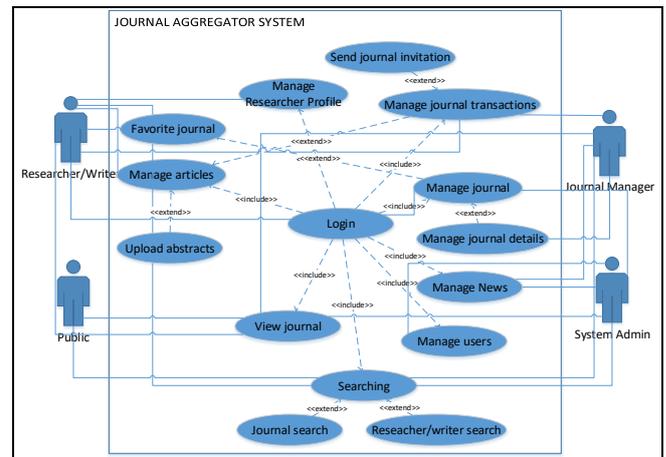


Fig.4. Use Case Diagram of Journal Aggregator.

C. Interface Design System

The interface that allows users to interact is a fundamental requirement of a developed system. The interface design that simple but complete is an option in developing the journal aggregator. Fig. 5 shows interface design for journal aggregator in Indonesia.

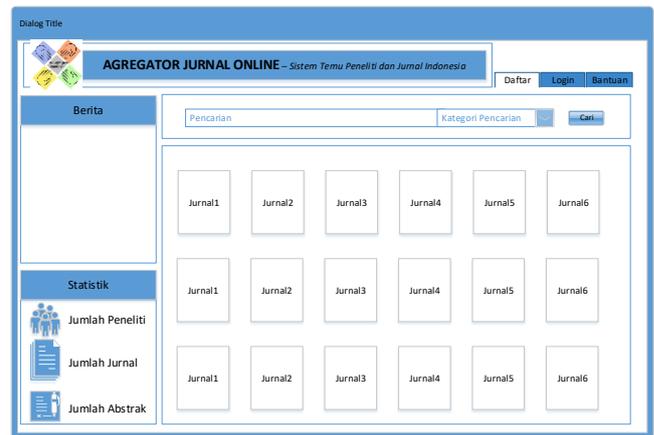


Fig.5. Interface Design of Journal Aggregator.

Reference materials in developing aggregator journal in Indonesia are Indonesia One Search (<http://onesearch.id/>) and Indonesian Scientific Journal Database (ISJD). Indonesia One Search (IOS) is created by National Library (Perpunas) Republic of Indonesia. Through IOS, users can search public collections of libraries, museums, archives and e-resources in Indonesia. IOS can be used to input digital collection repository [12].

The difference of a journal aggregator with Indonesia One Search (IOS) is within the coverage of work. IOS only provides abstract and location information. While journal

aggregator can search, mark as favorites and interact with journal manager.

ISJD is one of the sources in the development of journal aggregators because it is the ISSN record center for journals. ISJD is developed by the Indonesian Institute of Sciences (LIPI). Through ISJD registered user may save and download articles [1].

The aggregator journal developed differ from news aggregators in several aspects. Some news aggregators charge fees and can lower traffic to the original source [5, 6]. While aggregator journal are free and will not lower the visits to the original journal site. Because when users want to download the full article they have to go to the journal site (OJS). Journal aggregators will be very useful for researchers [13]. According to Cummings that researchers need tool which can find relevant research material based on open access information.

#### IV. CONCLUSION

Journal aggregator is built to assist researchers in finding journals that are suitable to their field. Also, this is designed to help journal managers in promoting their journals to attract potential authors. There are differences between journal aggregator and the systems that have been developed in Indonesia such as Indonesia One Search (IOS) and Indonesian Scientific Journal Database (ISJD). The differences are in coverage, search engine and transaction. The advantage of journal aggregator is the existence of transactions between researchers / authors with the journal manager in sending the abstract to be assessed and published in the journal.

#### ACKNOWLEDGMENT

This research project is supported by Directorate of Research and Community Service, Ministry of Research, Technology and Higher Education through *Penelitian Strategis Nasional Institusi* Scheme in 2018 Fiscal Year. We thank our colleagues from *Asosiasi Perguruan Tinggi Informatika dan Ilmu Komputer* (Aptikom) West Java Province who provided insight and expertise that greatly assisted the research, although they may not agree with all of the interpretations/conclusions of this paper.

#### REFERENCES

[1] PDII LIPI, "Indonesian Scientific Journal Database.docx," *Indonesian Scientific Journal Database*, 07-Jan-2018. [Online]. Available: [http://isjd.pdii.lipi.go.id/index.php/public\\_no\\_login/index\\_direktori](http://isjd.pdii.lipi.go.id/index.php/public_no_login/index_direktori).

[2] Ristekdikti, "Garba Rujukan Digital (Garuda)," *Garuda*, 07-Jan-2018. [Online]. Available: <http://garuda.ristekdikti.go.id>.

[3] Lukman, Ekawati Marlina, Ratih Keumalasari, A. H. A. M. Siagian, and Slamet Riyanto, "Perkembangan Open Access Jurnal Ilmiah Indonesia." Unpublished, 2012.

[4] S. Inger, "The importance of aggregators," *Learned Publishing*, vol. 14, no. 4, pp. 287–290, Oct. 2001.

[5] D.-S. Jeon, "Economics of News Aggregators," Toulouse School of Economics, Working Paper 18–912, Apr. 2018.

[6] S. Athey, M. Mobius, and J. Pal, "The Impact of Aggregators on Internet News Consumption\*," Working Paper 3353, Jan. 2017.

[7] J. Rutt, "Aggregators and the News Industry: Charging for Access to Content," *NET Institute Working Paper*, no. 11–19, p. 33, 2011.

[8] S. Chambers and W. Schallier, "Bringing Research Libraries into Europeana: Establishing a Library-Domain Aggregator," *LIBER Quarterly*, vol. 20, no. 1, p. 105, Aug. 2010.

[9] S. Di Giorgio, "CulturaItalia, the Italian National Content Aggregator in Europeana," *Procedia Computer Science*, vol. 38, pp. 40–43, 2014.

[10] L. Chiou and C. Tucker, "Content Aggregation by Platforms: The Case of the News Media," NATIONAL BUREAU OF ECONOMIC RESEARCH, Working Paper 21404, Jul. 2015.

[11] D. F. Saputra, "AGREGATOR SEBAGAI ALAT PENGEMBANGAN KOLEKSI PERPUSTAKAAN BERBASIS WEBSITE," vol. 8, no. 2, p. 10, 2016.

[12] Perpustakaan, "Indonesia One Search," *Indonesia One Search*, 07-Jan-2018. [Online]. Available: <http://onesearch.id/Repositories/Ios>.

[13] J. Cummings, "Open access journal content found in commercial full-text aggregation databases and journal citation reports," *New Library World*, vol. 114, no. 3/4, pp. 166–178, Mar. 2013.