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Open Access Repositories in Asia: An Overview

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Abstract

Open access refers to the free and unrestricted access to scholarly literature published around the globe via internet. Online free access to quality literature is desired by every individual, organization or community especially in developing nations. Various studies have been conducted which show that the growth of open access in developed regions like Europe and North America is quite prevalent but in case of developing nations such is not the case. Though developing regions are making progress towards liberating the literature from chains but still there is long way to go. Open access needs to be promoted on a large scale in developing nations. One among the various factors which necessitate the promotion of open access in developing countries is the economic constraint. Many organizations or individual scholars are not able to access and use the quality literature because they are not able to bear the expenses involved in the process and because access to literature is usually subscription based thus is required to be renewed every year. The present study analyzes the development of open access repositories in Asia. Their growth, country wise contribution, software used in creation of open access repositories etc. The study will analyze how much progress is made by the developing nations in Asia in the year 2019 by comparing it to the results of earlier studies conducted.

Keywords: Open Access, OpenDOAR, Libre, Gratis, Green Road, Golden Road, Asia, Institutional, Dspace.

Introduction

Open access refers to the free and unrestricted access to scholarly literature published around the globe, mere with a connection of internet **(Suber, 2003)**. Open Access to literature as defined by Budapest open access initiative, 2002 is "The free availability of literature on the public internet, permitting any user to read, download, copy, distribute, print, search, or link to the full texts of articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself" **(Chand etal., 2002)**. **Bjork (2013)** defines open access as "Open access means that a reader of a scientific publication can read it over the Internet, print it out and even further distribute it for non-commercial purposes without any payments or restrictions". Open access ensures the distribution, availability and accessibility of

scholarly communication in order to solve the problems caused primarily due to economic constraints, and other factors like political barriers, technical barriers, social barriers, geographical barriers etc **(Kayal, Das & Banerjee, 2018)**. Open Access is mainly distinguished on the basis of "rights to user" and on the basis of the "publishing mode or venue of publishing". On the basis of rights to user it is of two types: Gratis and Libre. Gratis is making the content available to the users free of cost but they (users) are not granted the right to modify the content or make replica copies of it. Libre on other hand in addition to providing scholarly content free of cost to read, also provide users the right to replicate the content or modify the content, through Creative Commons License. Most of the scholarly content is published through Gratis **(Suber, 2008)**. On the basis of publishing platform open access can be either published via Green road or Golden road. Publishing via Green road is free of cost while through Golden road some publishing charges may have to be paid by the author, this is usually because through Green Road author publishes the research work in a non open access journal but he is given permission to self archive the same on his own website or on the institutional website of his working place while through Golden road work is published via non commercial fully open access journals, which charge some publication fee **(Harnad etal., 2004)**. Open access movement is striving hard in fulfilling the information needs of maximum users possible. Under the movement of open access various initiatives have been undertaken. OpenDOAR is one such initiative. DOAR stands for Directory of Open Access Repositories. Repository is the main source of information preservation and dissemination. An institution showcases its research output in various forms through a repository. Repositories enable the institutions to make their research and intellectual output more visible and accessible to any potential user **(Loan, 2014).** Repositories are more than a simple information storage platforms, it uses metadata which enables the users to find more relevant information easily and efficiently **(Wani, Gul & Rah, 2009)**. Repositories are of various types, these types include institutional, governmental, aggregating, disciplinary, personal etc **(Mellon, 2006)**. OAR's have become the topic of much significance around the globe and almost all countries are maintaining their own open access repositories. Countries in Asia also have seemed to understand the significance of open access resources for their educational, economic, cultural and technological development and are therefore slowly but surely marking their progress in the same. Current study provides an over view of the types of open access repositories maintained in the Asian continent. Which open source software is mainly used by the institutions and along with these some other characteristics like preferred language, discipline and growth of the open access repositories will be looked upon.

Literature Review

The movement of open access in Asian region is in its formative years. The contribution of Asian region is less than the U.S.A alone. Growth of IR's in developed countries (U.S, U.K, Germany and Spain) is prevalent, contributing more than fifty percent (50%) of the total world repositories as noticed by **Nazim and Mukherjee (2011)**. Asian continent is the third largest

developer and maintainer of open access repositories after Europe and America **(Saini, 2018). Loan (2014)** explored various facets of open repositories in Asia and presented a lucid picture of their overall development. His findings reveals that total number of repositories in Asia amount to 400, with Japan (138) being the major contributor followed by India (58) and Taiwan (58). Maximum repositories are in English language (305) followed by Japanese (137) and Chinese (91). **Sharma (2018)** in his study found that most repositories in Asian region are institutional (694) in nature followed by disciplinary (16) and aggregating (9). Majority of repositories prefer English (506) language followed by Japanese (219) and Chinese (106) while Dspace (397) is the most widely used open source software in the creation of repositories. Further under subject type Multidisciplinary repositories (475) exceed Health and medicine (85), Technology (66), Business and economic (55) repositories in number. **Wani, Gul and Rah (2009)** conducted a study on open access repositories focused towards Global level in general and on Asian level in particular. They found U.S.A (137) at the zenith having maximum number of repositories globally, followed by U.K (136) and Germany (129). In Asia, Japan (69) emerged as the country with maximum number of repositories, followed by India (30). In terms of software usage Dspace is the most used software globally (345) as well as in Asia (95). **Singh (2014)** conducted an exhaustive study on the role of BRICS in open access and found Brazil (84) with most open access repositories followed by India (68) and China (39). On analyzing language it was found that most of the repositories contain documents in English language (82), followed by Portuguese (61). 73 repositories contain documents in more than one language, thus are termed multilingual. Study further reveals that Dspace is the most frequently used software with Brazil using Dspace in 63 repositories, India in 42 and China in 39 repositories respectively. **Loan and Shiekh (2016)** conducted a study on open access health and medical repositories around the globe and found U.S (39) leads other countries in providing the open access medical repositories followed by Japan (20) and U.K (19). Major share of repositories in the subject are institutional (187), followed by disciplinary (38) and aggregated (23). Health and medicine repositories archive contents in 30 different languages. Contents in English are stored by 181 repositories, followed by Spanish (41) and Japanese by (19). The maximum number of repositories (193) archive articles, followed by theses (126) and unpublished documents (84). Dspace (88) in this discipline also is the most used open source software followed by Eprints (43).

Objectives

The objectives of this study are-

To analyze different types of open access repositories

To identify core content types in OAR's

To identify Language diversity in OAR's

To explore different software used in creation of OAR's

To analyze which subjects are archived by OAR's

To examine the growth of OAR's during the past five (5) years

To identify the country wise repository contribution

Scope

The scope of the study is confined to "Directory of Open Access Repositories", popularly known as Open DOAR. Geographically the study is confined to Asian continent.

Methodology

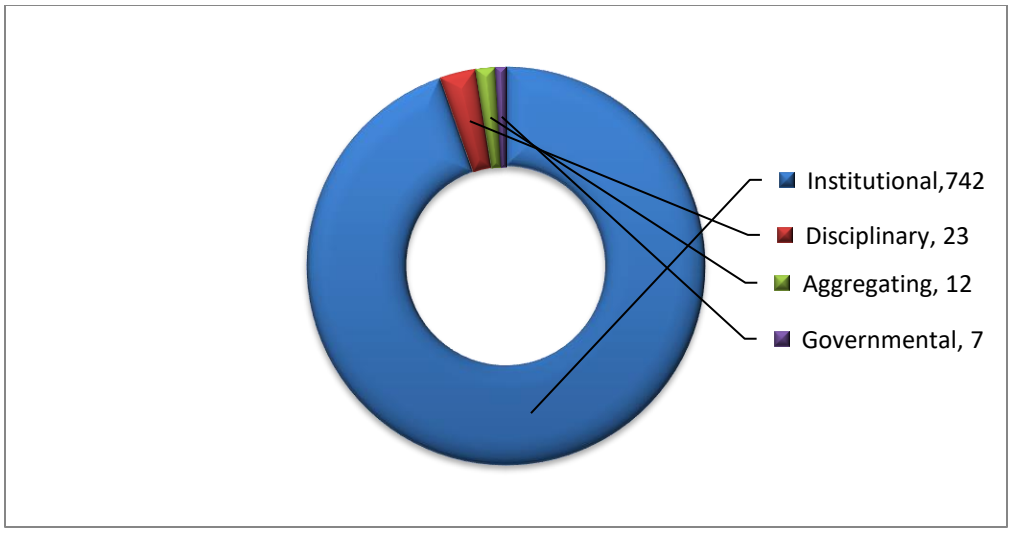
The Open DOAR was accessed to collect the related data to achieve the laid-down objectives. In the final stage, the data was analyzed and interpreted based on a set of parameters to get the right picture of Asia's contribution to Open Access literature.

Data Analysis and Findings

Repository Type

On observing the data it was found that most of the repositories in Asian region are institutional (742) in nature. Disciplinary (23), Aggregating (12) and Governmental (7) type repositories are far behind the institutional. Governmental repositories (1) are least found in the region while Disciplinary repositories are almost double in number as compared to Aggregating type (Table 1). Study conducted by **Sharma (2018)** also found institutional repositories (694) exceeding other types, followed by disciplinary (16) and aggregating (9).

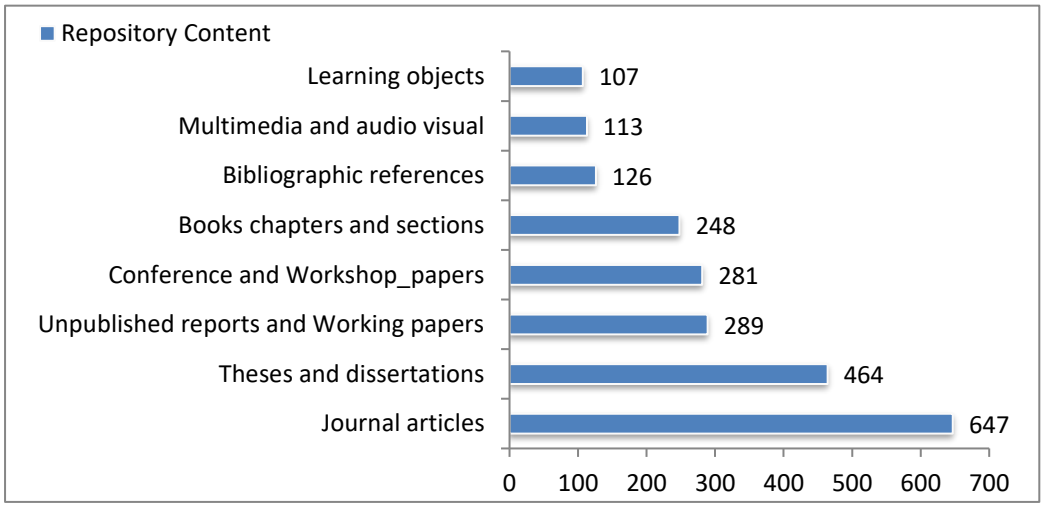
Table 1: Repository Type



Content Type

The study reveals that repositories in Asia mainly constitute journal articles (647) followed by Thesis & Dissertations (464) and Unpublished Reports (289) respectively. Multimedia (113) and Learning objects (107) are less likely to form the content of repository as compared to Conference & Workshop papers (281), Book Chapters (248) and Bibliographic References (126) (Table 2). **Loan and Shiekh (2016)** conducted a study on Global health and medicine repositories and found majority of repositories archive journal articles (193) followed by thesis (126) and unpublished documents (84) respectively.

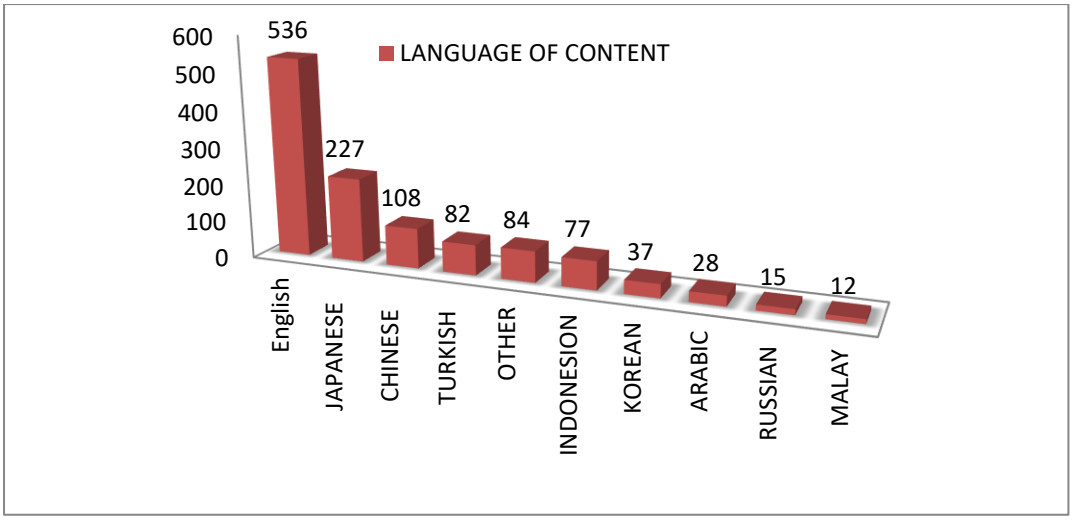
Table 2: Content Type



Language

English is the most preferred language in the Asian region as content in the repositories whether institutional, governmental or aggregating is posted mostly in English language (536). Japanese language (227) is also being widely used in content formation followed by Chinese (108). Malay (12) and Russian (15) are the least used languages in the region (Table 3). Three studies (Loan, 2014; Singh, 2014; Sharma 2018) conducted on the open access repositories in Asian region and open access repositories in BRICS association found English to be the most preferred language used in Asia as well as in BRICS association while Japanese language is the second most used medium of information communication in Asian repositories and Portuguese the second most used language in BRICS association.

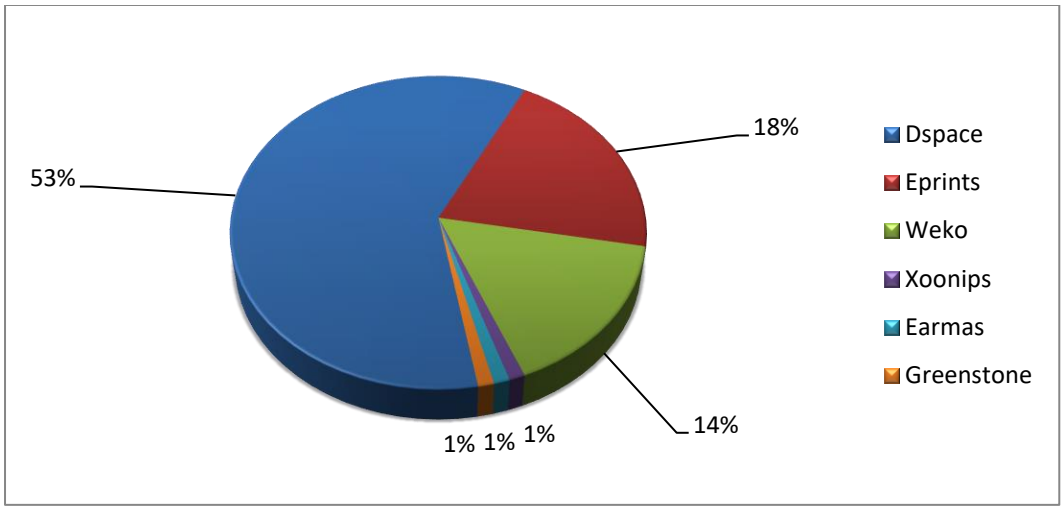
Table 3: Language of Content



Software Platforms Used

On analyzing the data it was found that Dspace (53%) is the most frequently used open source software followed by Eprints (18%) and Weko (14%). Xoonips, Earmas and Greenstone are used in equal percentage (Table 4). Various studies **(Wani, Gul & Rah, 2009; Sharma, 2018; Singh, 2014; Loan & Shiekh, 2016)** reveal that Dspace is most commonly used open source software globally (345), in Asia (397), in BRICS (63) association and even in global Health and Medicine (88) specific OA repositories.

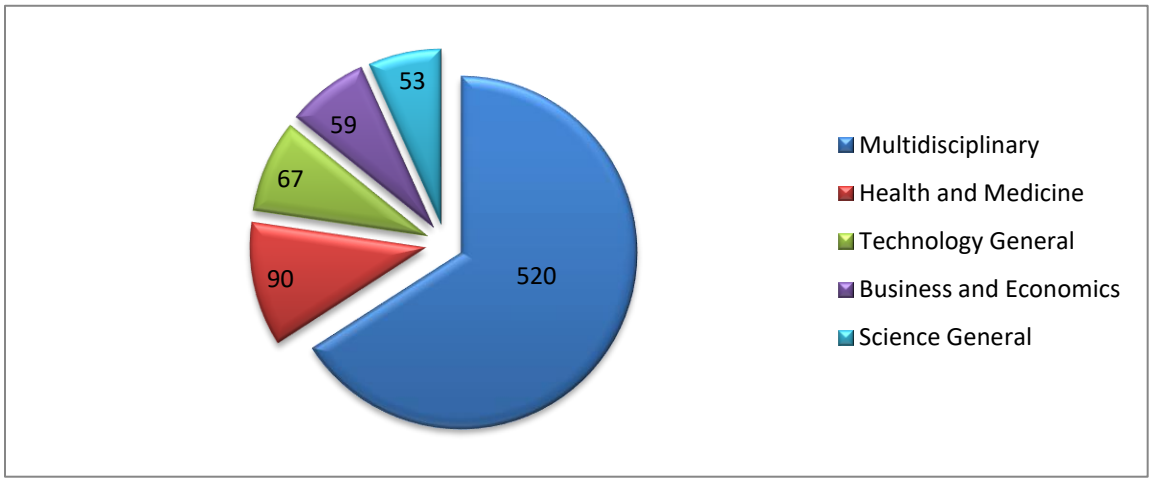
Table 4: Software Used



Subject Content

On analyzing the top five (5) subject themes based on which repositories in Asia are developed, it was observed that most of the repositories prefer to be Multidisciplinary (520). Health and Medicine (90) specific repositories are second most found in Asia followed by Technology General (67). Business and Economics (59) themed repositories are ranked fourth in the list followed by Science repositories (53) (Table 5). The result of the study conducted by **(Sharma, 2018)** coincides with result of this study, as it is found that most of the OA Repositories in Asia are multidisciplinary (475) in scope. Health and Medicine (85) repositories are second most found followed by Technology General (66).

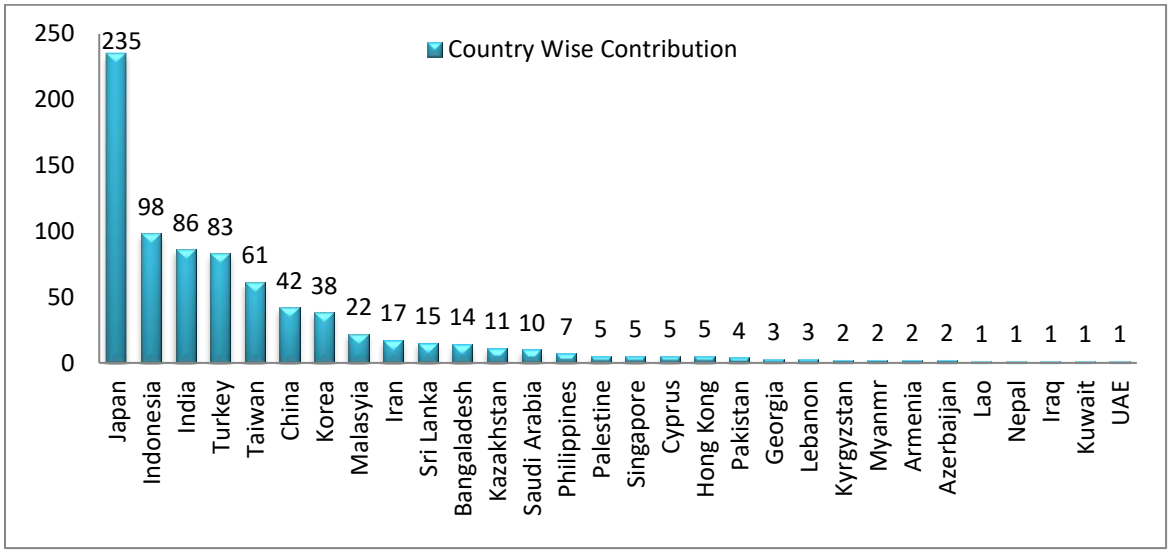
Table 5: Subject Content



Country wise contribution

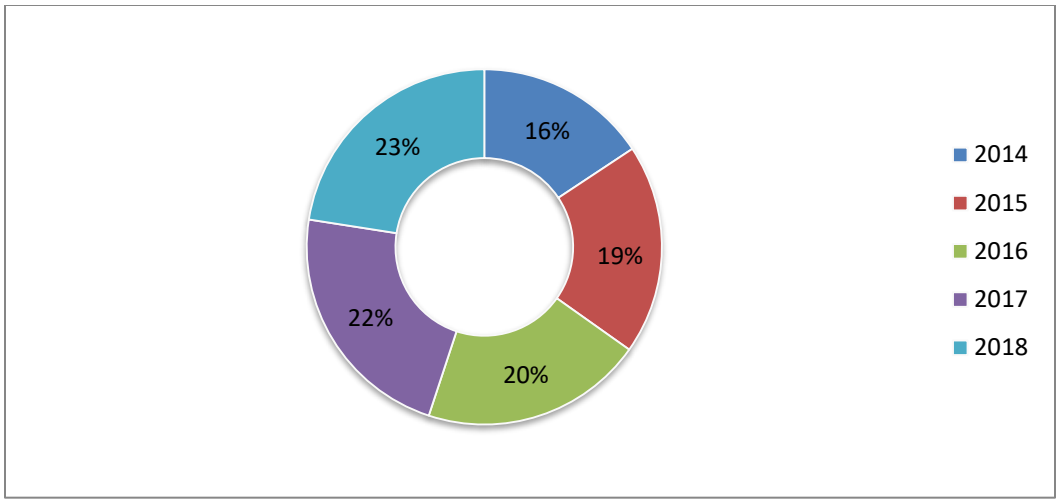
There are a total of 797 repositories in Asia. Japan emerges as the highest contributor with 235 repositories, followed by Indonesia (98). India occupies the third position with 86 repositories. China (42) occupies the sixth position preceded by Turkey (83) and Taiwan (61). Lao People's Democratic Republic, Nepal, Iraq, Kuwait and U.A.E are the countries with lowest contribution in the Asian region with each contributing a single repository (Table 6). Study conducted by **(Sharma, 2018)** reveals that in Asia, Japan (222) has maximum number of repositories, followed by India (81), Turkey (77), and Indonesia (70). Pakistan and Georgia both have least number (3) of open access repositories in Asia.

Table 6: Country Wise Contribution



Growth

During the past five years open access repositories in Asia are showing rapid growth, with repositories growing every year and their percentage increasing from 16% in 2014 to 23% in 2018 (Table 7).



Discussion and Conclusion

The Open Access movement is gaining momentum in Asia, from 400 repositories in 2014 to 797 repositories in 2018. Asian countries seem to have understood the importance of open access as it increases the visibility and accessibility of the research output, thereby resulting in greater impact, usage and recognition of a particular individual, organization, country or region. Repositories in Asia are mainly institutional, multidisciplinary, and English-language-based. One of the reasons for English being preferred not only in Asia but globally (claim on the basis of literature reviewed) is may be because it is the official language of 55 sovereign states and 27 non-sovereign entities. Focusing on the software used and content type archived mostly by the Asian repositories, here Dspace is the most preferred open source free software, while Journal Articles are archived more than any other form of information or research output. Japan is the most predominant country in Asian region with open access repositories far exceeding the other countries. It is not only in this particular study that Japan emerges as the nation with maximum number of repositories but various studies conducted in the past, some pertaining to the year 2009 show Japan in ahead of other nations in Asia, which shows Japan not only have understood the importance of open access but also have been able to implement the same very successfully while rest of its competing nations in the region are still in the initiation process. On concluding note it can be said that efforts should be made by educational institutions in Asia, to encourage their scholarly community to contribute more and more towards open access publishing. Awareness programs and workshops should be organized regarding benefits related to open access. Further International organizations like UNESCO and national education promoting organizations should join hands and walk shoulder to shoulder to achieve the goal of making quality literature available free of cost to every taxpaying citizen at global level in general and to developing Asiatic nations in particular.

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