

Open Data Network of Asean Foreign Affairs Ministry Libraries: A feasibility studies

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Abstract:

*The ASEAN Foreign Affairs Ministry (ASEAN-FAM) as the front guard of ASEAN diplomacy needs to think a new strategy containing a new way of communications among their stake holders. ASEAN-FAM Libraries, the places which provide expansion, creation, and collaboration, have a huge potency to link and collaborate ASEAN Community by creating a networking which could share information and resources to promote strong skills and potential in science and technology and seek to leverage these capacities to increase regional competitiveness, foster innovation and entrepreneurship, improve resources management with implementation of open data. The purpose of this research is to get clear insights about the network collaboration of foreign affairs ministry libraries in ASEAN region and to promote as well as to apply the open government data among ASEAN countries. This research is using survey check on three aspects of open data implementation on ASEAN FAM. There are data transparency, open data policy and technical aspect in data interoperability in 10 ASEAN-FAM. After examining the three aspects, this paper will describe a design system that should be adopted by the ASEAN-FAM Open Data Network. **Some findings** discovered on this research were: most of ASEAN countries do not have freedom of information act as seen from transparency aspect; only some ASEAN member states' freedom of information act could influence the information dissemination act in ASEAN-FAM, this situation created various differentiations on disseminating information among ASEAN-FAM; only Indonesia, Malaysia, and Singapore which are using standard metadata can ensure the data interoperability. The main issue in technical aspect is about collecting the data. ASEAN Secretariat can be used as*

the center of FAM-Library network on Open Government data initiatives in ASEAN region. The conclusion of this research is the ASEAN-FAM Library Network can be implemented among the countries in the region and it will have a huge implication to create an impact on ASEAN Regional Foreign policies but there are several problems on how to implement FAM-Library Network, there are: differentiation on information policy in each ASEAN country, information technology infrastructure and interoperability data.

Keywords: ASEAN Foreign Affairs Ministry, Open Data, Open Government Data, ASEAN-Library Network, Public Right Access Information and Data.

INTRODUCTION

ASEAN is one of the promising regions in Asia Pacific with 600 million populations and 630 million citizens, one of the fastest world's growing economies with a GDP close to US\$2.5 trillion and exports of goods and services of over US\$1.6 trillion. ASEAN has grown as the greatest market in the world. Since the establishment of ASEAN in 1967 with Bangkok Declaration, ASEAN has committed to share resources in information and policy. The Open Data is a relatively new concept in ASEAN. Currently, few governments in the region include it in their national ICT or economic development strategies. ASEAN Economic Community declaration in 2015 had changed the rules of engagement on how ASEAN got connected to each other.

ASEAN member countries are rapidly catching up on economic development with their neighbors. An increasing middle class is demanding and driving change, and many governments have announced plans to embrace e-Government and initiatives in openness. Innovations in information technology and data analytics promise improvements in quality of life and prosperity, and information and communications technology (ICT) empowers citizens despite relatively hierarchical political structures. At the same time, the region also faces mounting uncertainties, such as rapid urbanization, migration, climate change, food insecurity, and a slow but steady reconfiguration of power dynamics between society and governments (Asean Secretariate, 2017).

ASEAN countries have been among fast forward nations implementing ICT today, and most of ASEAN Foreign Affairs Ministries have developed an information center to spread spirit and idea of ASEAN. The Foreign Affairs Ministry (FAM) in ASEAN has played an important role as the information source for the ASEAN connectivity especially on how ASEAN manages the relationship between ASEAN members and Non-ASEAN members. FAM as a provider of information in public sector information should never stand alone in performing connection and collaboration with all ASEAN data providers. Since 2013, the Open Knowledge Foundation crowd sources have been an annual survey to create the ODI in an effort to provide a civil society audit of how governments around the world publish official data. The ODI is an independent assessment from a citizen perspective, and it gives an account of how accessible open data appears to data users. The index currently covers 149 countries, including most countries in ASEAN with the exception of Brunei, Laos and Vietnam. The aggregate ODI not only looks at open data from the government, but also includes private initiatives—publishing data from official sources—in Cambodia and Myanmar, where no official open data portals exist (Stagars, 2016)

The purpose of this research is to get clear preliminary insights about the network collaboration of foreign affairs ministry libraries in ASEAN region and to promote as well as to apply the open government data among ASEAN countries.

LITERATURE REVIEW

ASEAN-FAM Network

ASEAN is proclaimed as a community through a declaration signed by ASEAN leaders at their 27th Summit in Kuala Lumpur on 22 November 2015. This has been a historic development and important milestone in the evolvement of ASEAN since its founding in 1967. An ASEAN Community is the realization of the vision articulated by by ASEAN Leaders for the regional organization to achieve community status by 2015. The guiding document was the 'Roadmap for an ASEAN Community: 2009-2015' endorsed by ASEAN Leaders at their 14th ASEAN Summit in Cha-am, Thailand.

According to ASEAN Community Masterplan in 2011, the focus for the ASEAN Community over the next ten years would be guided but unlimited to the following broad goals which will further consolidate and strengthen the regional grouping:

- To greater emphasize the people of ASEAN and their well-being;
- To enhance awareness of ASEAN and its vision of a politically cohesive, economically integrated and socially responsible community;
- To engage all nationals of ASEAN member states through effective and innovative platforms to promote commitment and identification with ASEAN policies and regional interests;
- To ensure fundamental freedoms, human rights and better lives for all ASEAN peoples;
- To strengthen capacity to deal with existing and emerging challenges while maintaining ASEAN centrality;
- An outward-looking and global player;
- To implement the ASEAN agenda while pursuing national aspirations which contribute to ASEAN Community building; and
- To strengthen ASEAN Organs and ASEAN Secretariat

To ensure the focus for the ASEAN Community, the ASEAN Foreign Affairs Ministries (ASEAN-FAM) needs to be given great importance to enhancing functional cooperation in the socio-cultural pillar, which covers various fields such as education, culture, health, labor, environment, social welfare, science and technology. Furthermore, efforts had continuously been made to promote public awareness of ASEAN and good relations and understanding among the people of the region. To endorse the awareness of ASEAN, ASEAN needs powerful resources of information with integrating resources of information in ASEAN-FAM. The main benefit of this first stage is that the public gains access to a wealth of valuable data. This data can be used for the development of new value-added services. However, at this stage, governments do not consider a number of limitations which could impede data use and re-use. Actually, data is available provided by agencies and thus it is not possible to automatically search across data provided by different agencies or combine them in order to create value-added services and products (Kalampokis, 2011)

ASEAN needs to build data center in Ministry of Foreign Affairs of ASEAN countries which has a great role in open government data. Data center is a centralized location rendered with computing resources and crucial telecommunications – which includes servers, storage systems, databases, devices, access networks, software and applications. The ASEAN-FAM is also in charge in processing information including information products and services, which are generated, created, collected, processed, preserved, maintained, disseminated, or funded by or for government or public institutions. These things are controlled by highly trained personnel to use and to control industry, government and company services and the data center must be open for public.

Open Government Data (OGD)

The open government concept means that the focus is not so much on the technology but on the interoperability, openness, and participatory dimension which the technology might enhance, also on a fundamental change of how governments operate. Our interpretation of the official documents from the United States (Open Government Progress Report to the American People, 2009), Canada (Government of Canada, 2014), and European Commission (European Commission, 2013) which encourage the open government is the concept used broadly in the same way in various contexts, but the focus differs (Hansson, Belkacem, & Ekenberg, 2015).

The open government movement aims to create a government that easy to access and enables to cooperate between public administrations and public, in order to become more transparent and democratic (Mutuku & Colaco, 2012). Therefore, public is able to see what is inside government and participate to use it (Meijer, et. al, 2012). In the end open government data is expected to become not only enhancing the transparency and accountability of a government, but can have an impact economic benefits, innovative solutions for community advancement, to support public administrations' functions (Bakıcı et al., 2013). There are four phases of Open Government data implementation. The first phase of the model is cultivation, which shelters horizontal and vertical integration within government, limited use of front-end systems for customer services and adoption and use of intranet within government. The next phase is extension which involves extensive use of intranet and adoption of personalized web user interface for customer processes. Phase three is maturity where the organization matures and abandons the use of the intranet, has transparent processes, and offers personalized web interface for processing of customer requests. The last phase is revolution characterized by data mobility across organizations, application mobility across vendors, and ownership to data transferred to customers (Kitchin, 2014).

Based on study of open government data website's ASEAN country members, only 6 of 10 countries whom provides open data portal (Table 1.). Four countries (Cambodia, Laos, Myanmar, Vietnam) do not provide official open data portal, and the rest are available online. The open data portal are completed with submenu, topics, agencies, and resources (datasets). The agencies that delivered datasets are various, but none of them are Foreign Affairs Ministries.

Country	Website Address of OGD (Languge)	Amount of Topics (Datasets)
Brunei Darussalam	https://www.data.gov.bn/	-
Cambodia	-	
Indonesia	https://data.go.id/ (Indonesia)	<u>2747</u>
Laos	-	
Malaysia	http://www.data.gov.my/ (Bahasa Melayu and English)	<u>4078</u>
Myanmar	-	
Philippines	https://data.gov.ph/ (English)	
Singapore	https://data.gov.sg/ (english)	<u>1462</u>
Thailand	https://data.go.th	
Vietnam	-	

Fig. 1. List of Open Data Portal ASEAN Country (Data, 2018; Ritter, 2014)

To strengthen the open government data implementation, several countries are joining partnership in providing datasets. Indonesia and Philippines join partnership in “Open Government Partnership (OGP)” which members are governments all over the world. The partnership is available online at <https://www.opengovpartnership.org/>. On the other side, some countries (Cambodia, Myanmar, Vietnam, Laos, Thailand) dataset is provided online by Open Data Initiative (an East-West management Institute Project) at <https://opendevelopmentmekong.net/>. In partnership with local institutions in Mekong countries, the initiative build a website for each country (EMWI, 2015). It proves that, even countries which has no open data portal, are still producing data that harvestable from some sources in the internet.

It is an opportunity for The ASEAN-FAM Library to play role as a hub for Foreign Affairs Ministries of open data. Moreover, improvement open data network is stated in Master Plan on ASEAN Connectivity (Asean Secretariat, 2016). Prior initiative to make library as a hub for open government data was experiencing in United States (Freed, 2018). Two public library in California and Washington are prepared as a trusted government institution which deliver open data services in the time of low trust to government institutions. Type of data can be shared as ASEAN-FAM open data is the next agenda to be considered, such as Business information, Intellectual Property Right, Geographic information, Legal information, Meteorological information, Social data, and Transport information (Ubaldi, 2013). As ASEAN-FAM has three pillars communities, Political-Security Community, Economic Community, and Socio-Cultural Community (Won, 2017), datasets is focused on those issues.

FINDINGS

There are some findings were discussed on this paper, the findings was founded with using survey check on three aspects of open data implementation on ASEAN FAM. There are data transparency, open data policy and technical aspect in data interoperability in 10 ASEAN-FAM. After examining the three aspects, this paper will describe a design system that should be adopted by the ASEAN-FAM Open Data Network.

Data Transparency

Well-functioned democratic society, citizens and other stakeholders need to have access to monitor their government to initiate their aspiration and legitimacy. Transparency is the main factor to create a sustainability open government. Transparency is not only about how accountable the government but also means that stakeholders not only can access the data, and their also should be enabled to use, reuse and distribute it. The success to achieve transparency results in a considerable increase in citizen social control (Attard, Orlandi, Scerri, & Auer, 2015). The main successful factor to achieve transparency results in a considerable increase in citizen social control. Data Transparency is the first stage implementation of open data. This is the key tenet of the Implementation model in which government agencies should advance their open government initiatives incrementally, focusing on one implementation stage at a time. Starting from increasing data transparency (Stage One), agencies at this stage focus on increasing transparency of government processes and performance by publishing relevant data online and sharing it with the public (Lee & Kwak, 2011). The two most important tasks at this stage are:

- Identifying high-value, high-impact data for the public

- Improving and assuring data quality in terms of accuracy, consistency and timeliness

The library has a major role in performing information transparency in accordance with information dissemination policy. In fact, ASEAN-FAM transparency is still not implemented based on observation of the FAM-library websites in ASEAN. There are only several countries which have FAM-library website.

Country	Website Address
Brunei Darussalam	<u>None</u>
Cambodia	https://www.mfaic.gov.kh/categories/archive
Indonesia	https://opac.kemlu.go.id/#
Laos	http://www.mofa.gov.la/index.php/legal-documents
Malaysia	https://www.kln.gov.my/library/libraryindex.htm
Myanmar	<u>None</u>
Philippines	<u>None</u>
Singapore	<u>None</u>
Thailand	http://www.sifa.in.th/en/library/
Vietnam	https://www.mofa.gov.vn/en

Fig. 2. List of ASEAN-FAM Library Website

This situation occurred because ASEAN has variety types of government acts/law, specially in freedom of information (Ritter, 2014). The challenge is how all of the nations have the same perspective on data network so they can share their resources together. Some ASEAN-FAM seems to face several issues on budget cycle and lack of resources because they cannot change organizational culture to balance autonomy and control. This situation also effects on how the people perceive the accountability and responsibility of the government to open collaboration with others.

Open Data Publishing Policy

Data publication is one of the main idea on open government data, the publishing of data enables general public to achieve the main purposes of open government data initiatives; namely to use, reuse and distribute the published data. This is only achievable through the creation and consumption of the data by stakeholders. Government agency portals should provide exploration tools, where a data consumer or creator can simply look through the published data. Other tools, such as analysis tools, enable data consumer or creator to actually identify potential patterns in the published data. The analysis tools should also provide visualization, which aid data consumers or creator can view the data in a pictorial manner.

The main implementations of open government data initiatives are data portals, but there are a number of different implementations with various characteristics. Government data Catalogues or Metadata Portals/Repositories are indexes which store structured descriptions (metadata) about the actual data (e.g. PublicData.eu). Such tools have the potential of improving the discoverability of published datasets, as the discoverability of data is directly dependent on the quality of the metadata (Attard, J., Orlandi, F., Scerri, S., & Auer, S., 2015).

Country	Website Address	Published Data
Cambodia	https://www.mfaic.gov.kh/categories/archive	Archives, Legal Document, Treaty
Indonesia	https://opac.kemlu.go.id/#	Books, Archives, Legal Documents
Laos	http://www.mofa.gov.la/index.php/legal-documents	Books, Archives, Legal Documents
Malaysia	https://www.kln.gov.my/library/libraryindex.htm	Books, Legal Document, Treaty
Thailand	http://www.sifa.in.th/en/library/	Journal, Books, Legal Documents, report and Proceedings
Vietnam	https://www.mofa.gov.vn/en	https://www.mofa.gov.vn/en

Fig. 3. List of Published Data

From the table above, we can see most of the ASEAN-FAM Library portals published some documents such as books, document, legal documents, report and archives. The Thailand Ministry of Foreign Affairs has good library portals which reflect the open government data. The library has a complete data set from journal, archives, legal deposit to technical report. The library has the characteristics of OGD initiatives with regards to the employed technological approaches as well as some limitations that current initiatives present in particular. Current OGD initiatives use the following main technological approaches for publishing their data:

- Making data available of the Web as downloadable files in well-known formats such as PDF, Excel, CSV, KML, XML, JSON, etc
- Making data available of the Web as Linked Data through RESTful APIs and/or SPARQL search interfaces.

The web is moving from a model of connected documents to a model based on the connections between real-world objects and data describing these objects. The technological approach should be applied by government agency as the data publisher is making the data available on the web. Publishing data initiatives are classified as the first approach depending on the variation of technologies implemented for publishing the data. Conradie & Choenni (2014) said there are data publication format which most of the existing government data portals published their data, they are:

- a. The format of the published data (proprietary, machine readable, descriptive);
- b. The access method (restful apis, custom apis, search interfaces);
- c. The use of linked open data principles (http, uris, rdf); and
- d. The level of linkage to different datasets.

Technical Aspect in Data Interoperability

Data interoperability is the next challenge emerging from the decentralized structure of public administration. The challenge emerges when different agencies in different administrative levels and functional areas provide data about the same real-world problem since this data can be incomplete, controversial or obsolete. This challenges lead to

interoperability issues to aggregate existing metadata in a way that would be useful for data consumers. (Attard, Orlandi, Scerri, & Auer, 2015). Further aspect to data interoperability issue is versioning to an ideal representation of a dataset would also capture how it evolves over time. This paper also took a look on ASEAN-FAM Library to ensure the readiness of open government data in ASEAN. The Research on ASEAN-FAM Library came with result as follows:

Country	Website Address	Interoperability Component			
		Metadata		Standard Metadata Availability	
		A	N/A	A	N/A
Cambodia	https://www.mfaic.gov.kh/categories/archive	-	-	-	-
Indonesia	https://opac.kemlu.go.id/#	√	-	√	-
Laos	http://www.mofa.gov.la/index.php/legal-documents	-	-	-	-
Malaysia	https://www.kln.gov.my/library/libraryindex.htm	√	-	√	-
Thailand	http://www.sifa.in.th/en/library/	-	-	-	-
Viet Nam	https://www.mofa.gov.vn/en	-	-	-	-

A: Available, N/A: Not Available

Fig. 4. Technical Aspect in Data Interoperability

Government data integration is a very challenging task which includes significant technological and organizational issues. Regarding the technological issues, governments should provide their data in specific formats that enable and facilitate integration on the web. At the moment, Linked Data seems to be the most promising approach towards this direction. Thereafter, governments should decide on the architectural approach to follow (e.g. central repositories or federated queries).

The integration of government data with this non-government formal data defines the next stage of the proposed model. This type of integration will enable the provision of richer information to data consumers and will allow for more complex queries answering. A simple use case which will be enabled by this stage could include the identification of news posts which refer to public agencies or politicians connected to high expenditures in the governmental budget reports. The implementation of this stage increases both organizational and technological complexity which should be overcome by governments and third parties. As regards the former, possible conceptual integration points between government and non-government formal data should be identified (Kalampokis, 2011).

DISCUSSION

There two major discussion based on the findings, they are a discussion regarding the necessity to create ASEAN-FAM Data center that will accommodate the Open data implementation in ASEAN. The second discussion is about the design data link concept for ASEAN-FAM data network.

ASEAN-FAM Data Center

In this discussion, it becomes an important question whether ASEAN-FAM needs data center, and the second big question is who will be the coordinator for the ASEAN-FAM Data

Center. Before we answer the question, it is good that we take a look at how the condition of libraries in ASEAN-FAM in general. Generally, the data of foreign ministries in ASEAN is produced, collected, stored and disseminated by public agencies. Each agency manages data according to its mandate. Most of ASEAN-FAM agencies have formulated hierarchical structures which contain a number of administrative levels. Thus, agencies are in their responsibility and sometimes control others, i.e. those belong to a lower level administration. (Asean Secretariat, 2017) In addition, the public sector is organized in functional areas, such as education, health, etc. This decentralized organizational structure of the public sector suggests that certain public agencies in different administration levels and different functional areas produce, maintain and possibly disseminate similar data i.e. data about similar real-world objects or problems.

Based on the findings in this study, we can see that a lot of data have not been in sync in ASEAN. In terms of data transparency, many ASEAN-FAM websites do not publish data on their policies on ASEAN so the data is not well distributed. In addition, from the aspect of data publication policy of ASEAN-FAM library, nowadays, it is good enough that many ASEAN-FAM libraries have published their data digitally. However, if it is viewed furthermore, the data are not accessed through library but directly through ASEAN-FAM website. Libraries are less involved in dissemination of ASEAN-FAM information. This makes open data network through libraries rather difficult to be implemented. Moreover, the problem from the technical aspects of data interoperability among libraries in ASEAN-FAM is also not uniform, only Indonesia and Malaysia are using standard metadata which is Dublic core and MARC, the rest do not use standard metadata at all.

ASEAN-FAM needs to reformulate the data management policy of its member countries. It takes a coordinator who needs to run an open program of network data in ASEAN countries to set policies on the distribution of information data of ASEAN member countries. ASEAN Secretariat is the right institution to carry out the function. The ASEAN Secretariat's basic function is to provide both greater efficiency in the coordination of ASEAN organs and more effective implementation of ASEAN projects and activities. The ASEAN Secretariat's vision is, by 2015, it will be the nerve center of a strong and confident ASEAN Community which is globally respected for acting in full compliance with its Charter and in the best interest of its people. The ASEAN Secretariat's mission is to initiate, facilitate and coordinate ASEAN stakeholder collaboration in realizing the purposes and principles of ASEAN as being reflected in the ASEAN Charter. With all of the vision and mission of mind, they are able to perform roles and functions as an ASEAN-Data Center in the future (Stagar, 2016).

The issue to be discussed later on the next research is how to get the same perception on building a repository based on high heterogeneousness and the distributed systems of pose problems at the technical level (such as different operating systems and user interfaces) and at the conceptual level (such as same objects are named using different terms and represented in different ways). This is one of the substantive questions on the next research on ASEAN open data network.

FAM-Data Link Concept

In this discussion, let us imagine if the library in ASEAN-FAM has a good data transparency policy, good publication policy and technical aspects of interoperability which have been in accordance with the standards. Linking data is a process of following set from the best practices for publishing and connecting structured data on the web (Bizer et al., 2009). The term 'linked data' refers to data which is published on the web and, apart from being machine readable, it is also linked to other external datasets. The access to new technology has

increased rate of adoption of linked data, and led to the best practices on the web and evolve into a global information space containing billions of assertions where we can see both documents and data are linked each other. The web revolution of the web enables government institution to explore a new relationships between data and the ensuing development of new applications.

One of the offered solutions is a search system. This technique called "metasearch" or "federated search", eliminates the need to query one information collection after another sequentially to find the right answer. Through a simple user interface, federated search tools allow an individual to launch dozens or hundreds of searches with one query. The federated search engine translates the search into the required protocol and search language for each target source, returning a single set of results (Fahmi, 2015)

A brand new strategy can use a breakthrough by creating new ways on open data network in ASEAN. This strategy performs a single interface. A new architecture is designed to search legal documents in order to improve data interoperability services on data network in ASEAN.

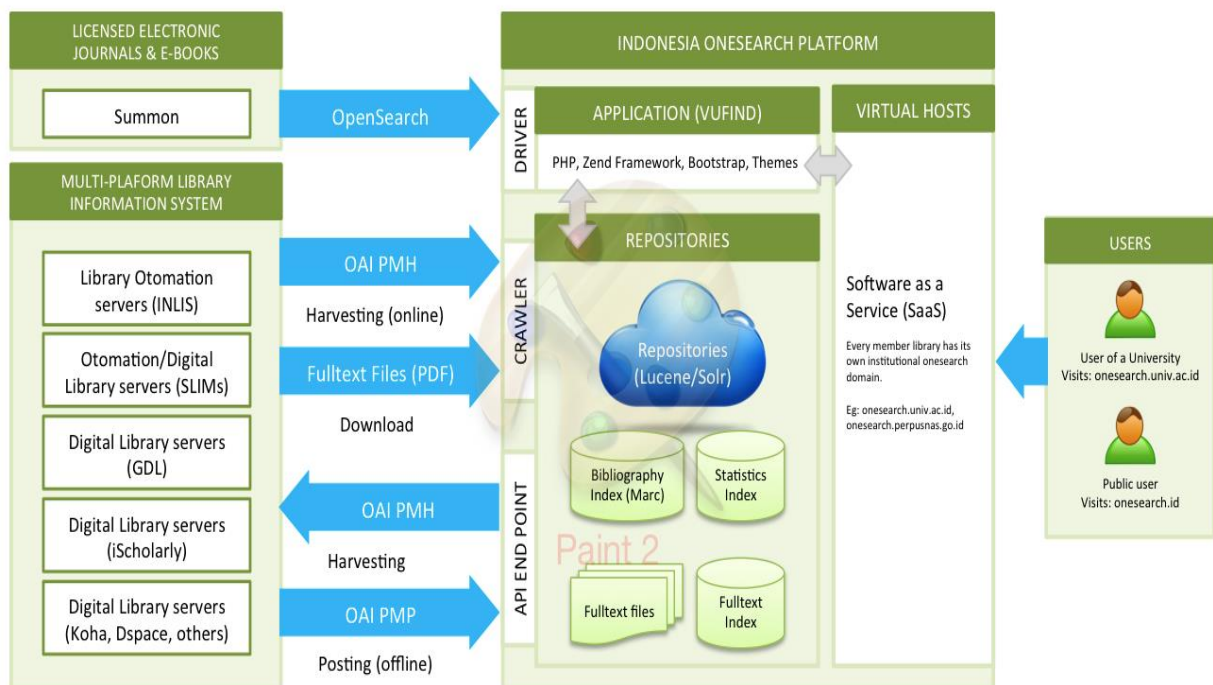


Figure 5. Interoperability Architecture (Fahmi, 2015)

The architecture systems allow metadata harvester to record the metadata of existing national laws on legal product database in ministries/agencies, provincial and district/city. This metadata harvesting process is also commonly referred to aspects of interoperability. It takes the right tools to harvest metadata called protocols. Currently, there are two kinds of standard protocols in the protocol z.3950: bibliographic and open archives initiative protocol, also called OAI. OAI protocol will be used as the repository of national law because it is more easily used by the repository manager in the area and this ministry and also because the system provides a standard protocol OAI interoperability framework which can be used by various communities that require the exchange of metadata information across the web. This means the process of data exchange (in this case an XML document) is via the web in addition to the OAI protocol supports a wide variety of metadata formats, such as Dublin Core (without qualification),

MARC, or rfc18071 format. In addition, OAI protocol is open source so it would be more efficient to use in terms of the budget in ministries/agencies in ASEAN.

The system adopting module for federated search of e-content applies four different protocols to search remote resources: Z39.50; XML Gateways; Web services; and HTTP search. Because it searches for multiple formats of resources, user productivity is enhanced with improved and integrated search results. Users get a single-source solution for searching all available e-resources, including licensed content and local digital content. The development and implementation of such technology requires database providers to enable linking of resources they provide to the libraries. Libraries will also have to make elaborate preparations necessary to adapt existing library records to the new technology. In addition, many libraries may opt to wait for the new and advanced technologies to stabilize and mature with regard to performance before deciding to adapt them. Furthermore, the cost of this new technology is expected to be high due to its complexity and newness.

Conclusion

Open data is a new phenomenon which needs to be seen and studied together with ASEAN. Therefore, an agreement is needed regarding the format, form and method of the network. The conclusion of this paper is that the open data network in ASEAN-FAM libraries needs to be improved again. There are some problems in the implementation of open-data network in ASEAN-FAM libraries, such as data transparency policy, publication and data interoperability of a country which influence greatly in the success of open data network in ASEAN. The recommendations for future research on the ASEAN open data network should be focused on how each member country is prepared in implementing open data network in ASEAN. In addition, research on ASEAN-FAM Network needs to involve ASEAN Secretariat as the front line in integrating all ASEAN-FAM data through libraries in every foreign ministry in ASEAN and ASEAN partner countries.

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