

## Creating a Taxonomy for Online Information Management

Sufian Supahan, Norhayati Hussin, Farrah Diana Saiful Bahry,  
Ap-Azli Bunawan, Mazwani Ayu Mazlan, Nurussobah Hussin

Faculty of Information Management, Universiti Teknologi MARA (UiTM) Selangor, Malaysia

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v10-i11/8183>

DOI:10.6007/IJARBSS/v10-i11/8183

**Published Date:** 20 November 2020

### Abstract

Information Technology plays vital role in the field of information management especially in current digital age. Information Technology like classification will assist the organization to systematically and efficiently managing the metadata in the system. The ability of organization to provide a systematic classification system is an essential part of any information management system as it provides a guideline for either the creator of information or the retriever of information. In this study, the goal is to determine what the steps to consider are and the limitations that may arise when creating a taxonomy classification system in information management and what are the benefits of creating a taxonomy system. The study, hopefully, would provide basic insight on what are the essentials of taxonomy in online information management and how usually an organization would develop and implement a taxonomy classification system.

**Keyword:** Library and Information Management, Information Management System, Taxonomy, Classification.

### Introduction

Information management is an essential part of any organization. Information management is the management of information from one or many references, and the arrangement of that content to one or many people (Mastura Ismail & Norhayati Hussin, 2018). According to the Queensland Government Chief Information Office (2018), information management (IM) is essential for several things. From the perspective of IM practitioners, Information Management (IM) is to assist the organization in achieving their goals, obtaining support or budget for initiatives, share information with other agencies, building capabilities, safeguarding vital information, information compliance (which may refer to auditing or governing bodies), and manage the lifecycle of information in an organization's activities.

Taxonomy is an act of providing a systematic classification for a specific item or being. It is to be considered as another form of metadata which allows any person in an organization to

search, access and retrieve information. All of this provides an efficient workflow of information and allows the organization to achieve its goals. Withum (2014) indicated that taxonomy and metadata are important at an enterprise level as the information has to be made readily and easily accessible for everyone in the organization. The taxonomy would be presented in the navigation site, so usually, users may search using these taxonomies to find information.

In this article based on a study by Yang and Wu (2019); Chostelidou & Griva (2013), we would like to iterate the importance of taxonomy in information management and what are the essentials needed to create an effective taxonomy. In place of that, this paper is to study how an information management strategy may create its taxonomy to facilitate based on the needs of the organization. This study will contribute towards body of knowledge especially on taxonomy of information management.

### **Essentials of Taxonomy Development in Information Management**

Nor Ahmad Khamzah, Sarah Md. Sah and Norhayati Hussin (2017) stated that information management and lifelong learning in the context of self-development across various dimensions, starting with the dimension of self, family dimension and the dimension of society. They later began designing strategies to help individuals gain the knowledge and skill to master various skills. Codification strategy is a system-oriented approach focusing on the application of information technology for storing and retrieving knowledge as reusable assets (Choi and Lee, 2003 cited in Yang & Wu, 2019)

Indicated in Doane (2011) are five taxonomy items that an organization needs when implementing, the first is a taxonomy maintenance tool whereby the most common would be a software called SharePoint. It is the most used software to provide a platform for the implementation of taxonomy. Second is tagging or "system keywords" in SharePoint whereby tagging of the document, web pages etc. is done, it makes it easier to classify information. The third is to have one robust internal taxonomy to be the guideline for the future development of other taxonomy within an organization. Fourth is integrated content creation, the taxonomy created by the internal teams to reflect the terms that company would understand would be the best to provide a practical taxonomy. Developing a keyword-rich content is one of the best ways to provide taxonomy software to auto classify the documents or the webpage that the organization has obtained. Last is the management's authorization to implement taxonomy in an organization. Hence the management has to support this effort so that other departments will fall into line and assist developing the taxonomy.

In developing these taxonomies, multiple tools can be utilized in the development and implementation process. Mostly the most crucial part in selecting multilingual support in taxonomy tools where it may help the organization to manage documents in different languages. Example of tools can be Mindserver, Stratify discovery system, Wordmap and Teragram categorizer (Chaudhry, 2010). According to Chaudhry (2010), few features need to be determined when choosing taxonomy building tools which are developed in terms of approaches to taxonomy building, deployment in terms of the method used for classification and tagging of resources, display of taxonomy content which include use of visualization tools and interface, maintenance to support for additions, modifications, changes, and

management of taxonomy contents, and platform where technical specifications of the taxonomy building tool and information environments supported. Hence with all the tools determined and selected the next phase would be to start the creation and implementation of the taxonomy system in information management.

### **Creating A Taxonomy in Information Management**

Taxonomy can be developed into many forms, whereby the structure of a taxonomy can be lists, tree structures, hierarchies, poly hierarchies, matrices, facets and system maps (Pellini & Jones 2011 cited in Yang & Wu, 2019). Therefore, Information practitioners must be able to evaluate which structure of taxonomy would fit the organization's needs. It has to be robust in terms of the adaptability of the taxonomy's form and can fit any medium and comprehensible to anyone in the organization. Simple hierarchical structure (e.g., enumerative classification) with IS-A relation between concepts is the most common structure of taxonomy (Knezić et al. 2015 cited in Yang & Wu, 2019).

Walli (2014) stated that there are several tasks involved in developing, applying and maintaining a taxonomy. Firstly the organization must create a taxonomy framework by determining a structure that suits any information that has been collected previously or in the future by the organization. The structure that the organization chooses shall capture the content whereby it may relate to how the organization perceives any piece of information. After the categories are selected, the organization has to assign each information to the taxonomy that has been developed.

Based on Cheng, Wu, & Hu, (2017) a school in Hong Kong developed a taxonomy that revolves around four main domains which are "management and organization", "teaching and learning", student support and school ethos", and "student performance". These main domains were made in order to provide a baseline for the teacher to register their information within their digital archive taxonomy system. The primary taxonomy should be broad and shallow since multiple, and at times disposable taxonomies can then be used for specific purposes (Pellini & Jones 2011 cited in Yang & Wu, 2019). Yang & Wu (2019) later stated that the top and second level categories might be adjusted when any subcategories are created, third to bottom level categories are developed from terms that are extracted from online information. This is one way an organization may start designing a taxonomy by assigning first major groups that most of the information might fall under than further develop sub and micro taxonomies that might suit the information that is within the organization.

Yang and Wu (2019) also indicated that when developing categories and terms, one may use a combination of the top-down or bottom-up approach. A bottom-up approach builds up essential categories from the concepts or vocabularies that are extracted from online information sources. Automated technologies such as information extraction and clustering can automate bottom-up analysis. A top-down approach starts at the general, conceptual levels and establishes an overall framework for the taxonomy based on the objectives of the taxonomy (Ramos & Rasmus, 2003 cited in Yang & Wu, 2019)

### **Limitations**

In implementing a taxonomy classification in organizations are bound to stumble upon certain limitations. According to Yang and Wu (2019), one of the difficulties that they found was a

structural problem during the development of the taxonomies, during the process of development they founded that certain terms are not time-related for instance like a response or short-term recoveries such as recovery phase and evacuation centre. Their study revolves around the taxonomy of an earthquake disaster recovery and response database, and here we understood that in certain times a term might relate to a heading even though it does not directly be related in terms of terms. A certain level of judgement must be made in order to determine whether to put all these items under a heading even though it does not belong there, and this comes to show that taxonomy is a very subjective thing.

Another limitation is the lack of personnel with the skill to develop and implement taxonomy. This has been state by Coleman and Radulovici (2020) which insufficient of taxonomist and lack of infrastructure can sum up the taxonomic research gaps. In terms implementation, we identified that there is a certain degree of expertise is needed during the course of implementation which requires information management skills as well as information technology skills in which relates to the medium that they would like to insert the taxonomies. This is one of the major limitations as normally for information management professional utilizing the Library of Congress Classification is used in order to provide a basic guideline in doing a taxonomy when a person has the comprehension to utilize LCC they would have the basic idea on how to develop a taxonomy that would suit the needs of the organization.

Budget constrictions is the other limitation as we found that using Excel as a form of taxonomy was crude and unreliable in terms of information sharing, hence the new for a proper software was needed however the availability of an open-source software was scarce as this is a specialized software and certain companies are not keen on spending money rather than finding open-source alternatives. Another limitation which relates to software is finding a robust software or platform that can sustain current implementation as well as future amendments of the taxonomy classification.

### **Conclusion**

Big data and information explosion is the cause of a large quantity of information in an organization that would result in an organization to have unorganized information management. Taxonomy is an integral part of an information management system they both go hand in hand where they complement each other within a system with integration on online systems. It was determined that the company could utilize information management implement to build innovation capability and development, which may track to higher performance of the company. Creating a taxonomy is a subjective manner in which there are various forms of classification that organizations may utilize in order to find the best possible way to accommodate the information within the organization. Any organization would be able to select from any number of classification in order to accommodate the implementation. The study hopefully would provide basic insight on what are the essentials of taxonomy in an online information management and how usually an organization would develop and implement a taxonomy classification system

### **Acknowledgement**

This article is financially supported by:

1. Faculty of Information Management, UiTM Selangor, Malaysia

### Corresponding Author

Norhayati Hussin.

Faculty of Information Management, Universiti Teknologi MARA (UiTM) Selangor, Malaysia.

Email: yatihussin@uitm.edu.my

### References

- Coleman, C. O., & Radulovici, A. E. (2020). Challenges for the future of taxonomy: talents, databases and knowledge growth. *Megataxa*, 1(1), 28-34.
- Chostelidou, D., & Griva, E. (2013). In-service Training Needs of English Language Teachers and Vocational Education. *Multilingual Academic Journal of Education and Social Sciences*, 1(1), 1–18.
- Cheng, E. C. K., Wu, S. W., & Hu, J. (2017). Knowledge management implementation in the school context: case studies on knowledge leadership, storytelling, and taxonomy. *Educational Research for Policy and Practice*, 16(2), 177–188. <https://doi.org/10.1007/s10671-016-9200-0>
- Doane, M. (2011). Information Management: 5 Taxonomy Must Haves for Your Organization. Retrieved December 12, 2019, from <https://www.cmswire.com/cms/information-management/information-management-5-taxonomy-must-haves-for-your-organization-012415.php>
- Ismail, M., & Hussin, N. (2018). Fundamentals of Information Management in Organization Academic Writing. *International Journal of Academic Research in Business and Social Sciences*, 7(12), 394–404. <https://doi.org/10.6007/ijarbss/v7-i12/3620>
- Khamzah, N. A., Sah, S. M., & Hussin, N. (2017). Information Management in Education. *International Journal of Academic Research in Business and Social Sciences*, 7(8), 743–749. <https://doi.org/10.6007/ijarbss/v7-i8/3290>
- Lehman, J. (2009). Taxonomies for Practical Information Management - New Idea Engineering. Retrieved December 13, 2019, from <http://www.ideaeng.com/taxonomies-information-0101>
- Masrek, M. N., Hussin, N., & Tarmuchi, N. (2008). An exploratory study on systems development methodologies for web-based applications. *Information Management and Computer Security*, 16(2), 137–149. <https://doi.org/10.1108/09685220810879618>
- Merriam-Webster. (n.d.). Taxonomy | Definition of Taxonomy by Merriam-Webster. Retrieved December 12, 2019, from <https://www.merriam-webster.com/dictionary/taxonomy>
- Queensland Government Chief Information Office. (2018). Why is Information Management so important? | Queensland Government Chief Information Office. Retrieved December 12, 2019, from <https://www.qgcio.qld.gov.au/information-on/Information-Management/how-should-i-manage-my-information/why-is-information-management-so-important>
- Chaudhry, S. A. (2010). Assessment of taxonomy building tools. *The Electronic Library*, 28(6), 769–788. <https://doi.org/10.1108/02640471011093480>
- Tomei, L. A. (2011). Taxonomy for the Technology Domain. In *Taxonomy for the Technology Domain*. <https://doi.org/10.4018/9781591405245.ch005>

- Walli, B. (2014). Taxonomy 101: The Basics and Getting Started with Taxonomies. Retrieved December 13, 2019, from <https://www.kmworld.com/Articles/Editorial/What-Is/Taxonomy-101-The-Basics-and-Getting-Started-with-Taxonomies-98787.aspx>
- Wang, Z., Chaudhry, A. S., & Khoo, C. S. G. (2008). Using classification schemes and thesauri to build an organizational taxonomy for organizing content and aiding navigation. In *Journal of Documentation* (Vol. 64). <https://doi.org/10.1108/00220410810912424>
- Withum. (2014). Why Good Taxonomy And Metadata Are So Important. Retrieved December 12, 2019, from <https://www.withum.com/resources/why-good-taxonomy-and-metadata-are-so-important/>
- Yang, L., & Wu, Y. (2019). Creating a taxonomy of earthquake disaster response and recovery for online earthquake information management. *Knowledge Organization*, 46(2), 77–89. <https://doi.org/10.5771/0943-7444-2019-2-77>