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Research Article

Improving Library Services: From Information Services to Knowledge Services

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Abstract.

Digital natives and the alpha-beta generation have different behavior from previous generations when it comes to searching for information. They are more likely to use gadgets in every activity of searching, processing, and sharing information/knowledge. This has implications for how libraries serve them. The importance of appropriate services for digital natives and the alpha-beta generation is because they are the nation's assets in the future. The SECI model describes how knowledge is disseminated from, by, for, and/or to individuals in an organizational environment. The use of the latest web technology in libraries will further dynamize the organization of knowledge in an institution. This text is in the form of an idea prepared based on a literature review with a qualitative approach, describing how to improve library services from information services to knowledge services. Traditional library services only provide information as desired by the library without any analysis or abstracts beyond the data/information in question. The combination of understanding of ontology, semantics, and SECI models encourages an increase in higher service levels from information services to knowledge services. Knowledge services are developed from a combination of various data/information formats on the same subject linked to each other through multimedia visualization so that users get solutions/knowledge to the problems they are looking for. The development of knowledge services requires several related things, namely: technology architecture design, content, human resources, and future development.

Keywords: information services, knowledge management, knowledge services, library

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1. Introduction

Advances in information technology and telecommunications have changed the way people/society obtain information. At the same time, it is becoming easier for everyone to express ideas or things in various forms and various media and share them with other people without being limited by time and space. At the same time, technology also changes the social structure that exists in society. The social structure that occurs due to the influence of technology is grouped according to age, namely the veterans generation, baby boomers, generation X Y[1] these three generations are called digital immigrants), digital natives [2] and alpha beta generation [3]. It is important for libraries to pay attention to these various generational groups in an effort to provide services that suit the behavior of each group.

The current large group of library users is the digital native generation, while the alpha beta generation will dominate the next few decades. The majority of their learning process uses gadgets for every activity of searching, processing and sharing information/knowledge. The digital native generation includes people who are 'omnivorous' and 'opportunistic' with the characteristics [4] of obtaining information as quickly as possible/instantly, enjoying collaboration/ networking, multitasking, working in parallel, preferring interactive images to text, liking to work like a 'game', recognition of its existence (there are rewards), enjoyment of everything that is instant, and random access to information (hypertext). The hypertext context was formed along with the progress of the internet which has an effect on the way information is managed. Based on the previous description, it can be underlined that when the digital native generation carries out information searches, they want results as quickly as possible along with other related information. This can only be done through information technology (internet).

This has implications for how libraries serve them. The importance of appropriate services for digital natives and the alpha beta generation is because they are national assets where the existence and progress of the nation in the future rests on their shoulders. So (traditional) library services in the form of borrowing books are no longer adequate. They need a library that can manage information into knowledge packaged in digital format so that it is easily accessible anytime and from anywhere. This is one way to speed up the knowledge transfer process (learning process). "Their learning model/style is also affected, the learning model becomes fast-paced, creates random interrelations, operates visual information in a dynamic way so that the information obtained is accurate and useful" [5].

To respond to the conditions above, it is necessary to have an information services profession to identify, analyze and coordinate the various needs of potential library user groups. This part of the process determines the level of service. The requirements change from data, information to knowledge. The main reason is that the needs of library customers grow and change: from access to information, storage, and access to knowledge. The goal of knowledge services is to provide a high level of service through the effective use of knowledge. So a custom repository must be accessed and used, then analysis tools can be applied to achieve the user's goals.

Knowledge becomes very important when we talk about organizational advantages in business competition. Japanese organizations or companies have achieved tremendous progress regarding their position in international competition. According to Nonaka [6] the success of Japanese organizations is not due to their capabilities in the production sector; because they can reach more economical capital; because they have a close

relationship; and in depth with their clients (partners) as well as with the government. The success of Japanese organizations was achieved because of their skills and expertise in the matter of “creating recognition for the organization” (organizational knowledge creation). What is mean by realizing organizational recognition is the capacity of the organization as a whole to produce new recognition - then distribute it to all members of the organization and then implement it into the system and materialize it in the form of products or services.

Information technology and globalization are two forces of change that will continue to grow, it is not enough for libraries to improve their quality only through “get-networked” and “go international” if they want to provide the best service for their users. In a global world full of high technology, organizations should be increasingly fluid, comprehensive and responsive to the dynamics of their environment. Libraries should be able to organize complicated/complex information so that it flows, capture the latest knowledge as quickly as possible, and disseminate knowledge to all users or elements of the organization. Based on the description above, the main thing is not whether all individuals are connect to the internet, but whether each individual can immediately take advantage of the information and respond to existing opportunities [7].

2. Theoretical basis

2.1. Development of Web Technology

The World Wide Web, often abbreviated to Web, is not the same as the internet as people think. Web is a service from the internet. The web is a system with internationally accepted benchmarks for documenting, tracking, generating and presenting information using a client/server design [8]. The web is made up of digital document files from all corners of the world. Each digital file on the web is called a website which can document manuscripts, illustrations, video, audio and animation [9]. The web uses an interface in illustrative mode, so it is very easy to use.

Web designers use various protocols such as HTML (hypertext markup language) and HTTP (hypertext transfer protocol) to embed sound, video, graphics and illustrations into documents. When a document is accessed, the images and sounds embedded in the document are also available to the accessed. This cannot be separated from the hypertext environment. HTTP describes the connection standard used to redirect pages from WWW elements on the internet. HTTP describes how messages are created and

transferred, as well as what activities must be carried out by web servers and browsers in response to various instructions.

Almost all websites contain hypertext or hypermedia links. Hypertext refers to text-based document links, while hypermedia combines text-based links with image, audio and video links. Links allow information seekers to obtain information in a nonlinear way, meaning that information seekers can move directly to certain topics without following certain rules/sequences [10]. Branching from one topic to another in a nonlinear way makes links an easier way to search for information. Information seekers move from one text or document to another text or document simply by clicking on the highlighted term. Navigation between documents is carried out using graphical web browsers such as Netscape, Internet Explorer, Firefox, Opera, Safari, Google Chrome which display web documents and allow hyperlinks.

The Web is a global repository of information. One of the main uses of the web is to search for specific information including text, images, audio and video. The first step in conducting a search is to identify the main idea or concept of the topic about the desired information. Then use the search tool to get the information. There are two search tools that can be used, namely search engines and subject directories. A search engine is automated software that matches a user's topic terms (usually keywords) with a list of indexed documents found on the web, then arranges the list in order of relevance and provides hyperlinks to the documents so that the documents can be examined by the user [11]. Subject directories group websites into specified categories, such as sports, hobbies, or subjects in science.

A website is a combination of websites that are connected to one another along with other related things, for example text and illustrations that are documented on a web server. A web server is a computer that fulfills requests from web pages and then transmits them to client computers. Today's web is interactive, where a web allows someone to participate by modifying web content, installing application software on the site for use by visitors. According to web technology experts, this is known as web 2.0, currently web 3.0 or semantic web is also being developed. Web 3.0 is predicted to be able to carry out any task that humans can imagine [12].

Despite their weaknesses, search engines compete with libraries in information services. De Rosa [13] said that search engines and physical libraries are both chosen as sources of information and users are equally satisfied with both. Yet young people rate Google above library Web sites for simple information and consider the search engine more accessible, cost effective, easier to use and more convenient. In general, search engines are considered as reliable as libraries when it comes to information sources and

are considered more appropriate as part of people's lifestyles. Young people tend to be more satisfied with search engines, especially because of the speed of their search power.

Now the proliferation of Web sites and the popularity of the Web have brought mixed blessings to society, especially regarding the information they find. Traditionally, librarians select library materials, especially for information, using criteria applied to library materials accuracy authorities. This is different with the Web. On the Web, users often cannot differentiate between unbiased search results and paid advertising; not knowing the difference between sponsored links and regular links [14].

Websites can display more than just text and links, to make them more attractive, websites can also display multimedia. Multimedia refers to all applications that integrate text and graphics, virtual reality, video, audio, and/or animation. Multimedia makes web pages more dynamic, increases the types of information presented on the web, expands the potential uses of the web, and makes the internet a more enjoyable place. Elements in multimedia include [15].

1. Graphics, electronic manifestations of non-text information, for example photos, diagrams or pictures. This variety of graphic types has various graphic formats on the web, such as: BMP, GIF, JPEG, PNG and TIFF.

2. Animation, the impression of movement created by displaying a series of static images in a row.

3. Audio, including songs, words and different sounds. If you want to listen to audio files, you need special software called a player. Methods for distributing audio are podcasting and streaming.

4. Video, various dynamic images that are moved at different speed levels.

5. Virtual reality, the use of computers to create a replication of a real area or a fantasy area that looks like a three-perspective space.

6. Plug-ins, programs that expand the capabilities of a web browser in the form of additional application software.

2.2. Knowledge Management

Knowledge management (recognition) has a foundation in the form of data (facts) and information. The model used to describe the formation of knowledge is illustrate in the following order: data (facts) information knowledge (recognition). In the current digital age, transformation mechanisms ranging from data (facts) to knowledge based on this

model in various institutions are widely implemented with the support of technology. However, knowledge management is not just a technology-related matters, knowledge management is a social mechanism. The social mechanism in question refers to the simultaneous mechanism of a collection of more than one components, collectively correlated to form a complex mechanism known as knowledge management [16]. In social mechanism procedures, the collection, dissemination and use of knowledge is possible and made public. Transforming information into knowledge requires different procedures than transforming data (facts) into information [17].

Several definitions regarding knowledge management were conveyed by experts, each expert basing them on their scientific context. One of them is Marc Auckland:

"*Knowledge management is a skill that promotes integrated strategies in the creation, networking, management, access and utilization of a company's intellectual capital in products, markets, consumers, services and internal mechanisms*"

whiled the British Council defines knowledge management as:

"*A scientific discipline that has the goal of utilizing knowledge assets that enable every person in the organization to raise their level of performance through the process of creating, documenting, absorbing, sharing and implementing knowledge* [18]."

Knowledge management cannot be separate from work related to organizing information, namely librarians. For most people, librarians are understand as individuals who work in libraries. Law Number 43 of 2007 concerning Libraries, article 1 paragraph 8 explains:

"*A librarian is someone who has competencies obtained through and/or librarian training and has duties and responsibilities to carry out library management and services*."

In the last century, organizing knowledge (knowledge management) has become a method for growing the production/service capacity of an institution. Competition between various institutions does not solely rely on controlling natural resources alone, but has shifted to optimizing the human resources used. The use of human resources is carry out through creative management and renewal, so that it can trigger an increase in organizational performance. Carl Davidson and Philip Voss as quoted by Setiarso [19] argue that organizing knowledge is how companies organize their employees, as well as how individuals from different locations start conversations.

Knowledge is organize so that it can be used to perfect organizational capacity, raise the level of organizational education, increase capabilities, maintained intellectual property for business purposes [20]. Organizing knowledge begins with identifying the

emergence of knowledge formation. A system that contributes to knowledge management includes a synchronous knowledge repository with a complex structure and relationship between compilation and knowledge, utilization of ontologies, and semantic networks that realize hidden expectations in knowledge management.

Management of knowledge from the beginning of its creation to its use involves several elements. These elements can be recognized through a study of the philosophy of science. Ontology is a part of the philosophy of science that analyzes existing things (existence) but is not relate to specific manifestations [21]. In this condition, ontology describes the way knowledge is represent regarding the substance, property of an object, and the potential relationship between these objects in the realm of knowledge. Ontologies contribute to knowledge management mechanisms as well as initiating opportunities to move from a document-based understanding of knowledge that is interconnected, can be combined, can also be reused in a more dynamic and flexible way. There are four elements involved in designing an ontology in a higher education environment, namely faculty, laboratory, knowledge, and subject headings. The four elements of the ontology initially have no connection, to link the four elements they are illustrated in the form of images until these elements become related to one another.

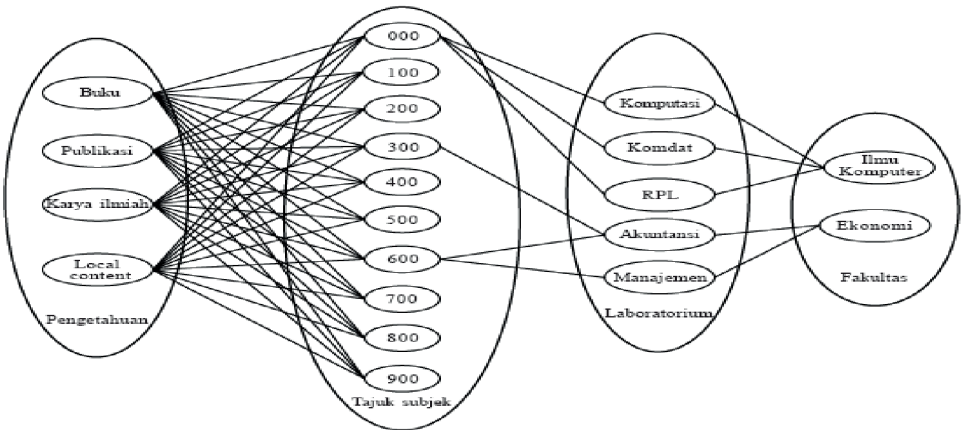

Figure 1: Illustration of ontology elements [22].

Based on the description and definition above, human resources are the most valuable capital for an institution. Some institutions do not or do not yet recognize the capacity of knowledge and experience held by their employees. This has been proven based on the results of a study conducted by Delphi Group Research [23], that recognition/knowledge in organizations is documented with the following composition: 42% in employees' brains (memory), 26% manuscripts, 20% digital archives, and 12% electronic-based knowledge.

On the other hand, in the process of knowledge development, a knowledge transmission mechanism is formed. Based on the SECI model [24] there are four mechanisms for transmitting/transferring knowledge, namely socialization, externalization, combination and internalization. Socialization is a mechanism for transferring from tacit knowledge to tacit knowledge, for example the dissemination of information between individuals through oral/conversation media. Externalization is a mechanism for transferring tacit knowledge to explicit knowledge, for example writing articles in newspapers, journals, writing books, and also blogs. Meanwhile, combination is the transfer of knowledge from explicit knowledge to explicit knowledge. Examples of combination include making a summary of an article or summarizing the contents of a book. Internalization is the transmission of knowledge from explicit knowledge to tacit knowledge, for example lecturers provide lecture material from reference books.

Figure 2: SECI model based on learning mechanisms. Source: [25].

Knowledge becomes very important when we talk about organizational advantages in business competition. Stages of development in the knowledge management process to achieve competitive advantage according to Nonaka (with author's changes),

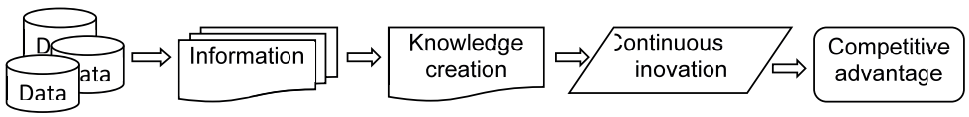

Figure 3: Knowledge management process for competitive advantage.

According to Nonaka [26] from this sequenced it can be concluded that the only resource that can be relied on to achieve competitive advantage is knowledge.

3. RESEARCH METHODS

This manuscript is an idea for improving services in libraries, and the idea is prepared based on a literature review using a qualitative approach. Actions in the form of data analysis in this study only reach the description stage, namely describing and presenting facts in a systematic way so that they are easy to understand and conclude [27]. This study aims to illustrate in a systematic and accurate way the facts and characteristics of library services. The data summarized is descriptive in form, so it is not intended to search, verify hypotheses, develop projection or investigate implications [28].

The data used originates from primary information, namely journal articles and monographs as well as other sources related to the topic being studied. The data collection technique in this study is literature study, namely a technique that describes, studies, and criticizes printed or digital documents in searching for supporting data for this study.

The approach used emphasizes analysis of the conclusion mechanism using deductive or inductive methods, as well as analysis of the dynamics related to the phenomenon being studied using scientific logic. This can mean that the qualitative approach focuses primarily on responding to the problems being studied by utilizing rational and argumentative thinking [29].

4. Discussion

4.1. Improving Information Services into Knowledge Services

Data, information and knowledge are viewed as a hierarchical structure (Figure 3). Data is a symbolic representation of an entity, its properties and form are codified and communicated. Data can be turned into information if they are put into context and given meaning. Data becomes information if the data is connected to other data. Information becomes knowledge when it is analyzed, related to other information, and compared with what is already known. Knowledge consists of the theory “if A then B with probability P”. Thus we can say that A and B consist of information or events about something, while their relationships and probability distributions are knowledge [30]. Information is material. Data mining technology can find tacit knowledge in data. It gives a reason why something happens.

Information services can be described simply, “a combination of information, technology, and people ... a set of activities that provides individuals with relatively easy access to data or information” [31]. Today, most digital libraries focus primarily on providing users

with access to diverse digital information resources. However, traditional information services provide users only with the information itself rather than things like analysis or abstracts that are outside the data/information. This means users cannot get the knowledge they need.

To meet user needs, professional information services must focus on identifying, analyzing and coordinating the needs of various groups of potential users. High-level information services transform data, information into knowledge. Currently, information services are widely required by users to meet their dynamic needs. At the same time, information technology is now developing into knowledge technology.

The aim of information services is to meet library needs, including searching for information and using information sources in the library. Readers can get help from reference librarians in searching for information. By using systematic reference interviews/discussions, librarians can determine library needs and ensure the origin of information is relevant and accurate. The assistance provided can be in the form of books or journal articles, etc.

Turning information into knowledge. Provide visual support to present knowledge comprehensively. “The whole is the form and knowledge is the spirit” [32].

The earliest information service is usually a service that answers various questions from users about all things related to libraries. Various questions frequently asked by users can be visualized in the form of an interactive document and become an easily accessible web page as a guide (navigator) for users, as in the example in Figures 4 and 5 below:

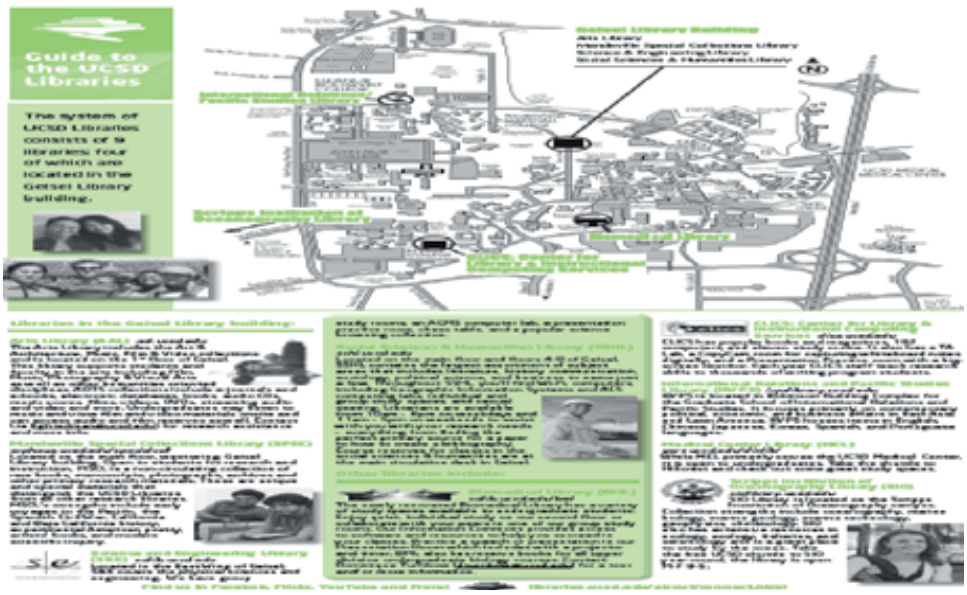

Figure 4: Questions become interactive documents.

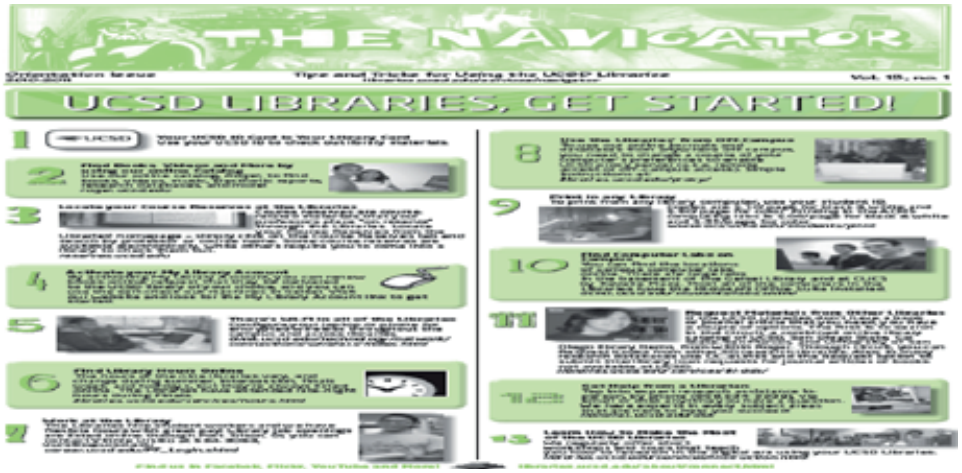

Figure 5: Questions become interactive documents.

The development of information technology ensures that the documentation and utilization of information and knowledge is increasingly fun, interactively and easy to understand using multimedia imagery which includes text, images, audio, video and film/animation. Presentation of library materials in multimedia format directly converts the learning model from seeing and reading into a learning model by listening, seeing, reading, observing and doing. With current web technology, it is possible to transfer information sources in the form of multimedia documents, starting from questions about libraries, collections and information services.

In multimedia texts, the construction of information into knowledge is represented as a collection of information objects that are related to one another through a logical path of affiliation to build a semantic network. In a semantic network, objects (nodes) are depicted as circles, whereas affiliate paths (links) are depicted as lines (edges) that connect one object to another, as represented in Figure 6. Furthermore, each object in the semantic network can be clicked to to find out detailed information about the object (which can be in the form of text, images, graphics, sound, video, or film/animation) or to continue exploring different objects that are connected to each other [33] (see Figure 7).

Knowledge search needs to be accommodated by supporting dynamic search contextually according to user preferences. Search services for certain knowledge objects, for example searching for knowledge about the problem of anthrax in cattle is illustrated in Figure 8. Several elements that are connected to the problem of anthrax, such as visual indications, distribution, procedures for dealing with it can also be accessed by readers using this web-based browsing system.

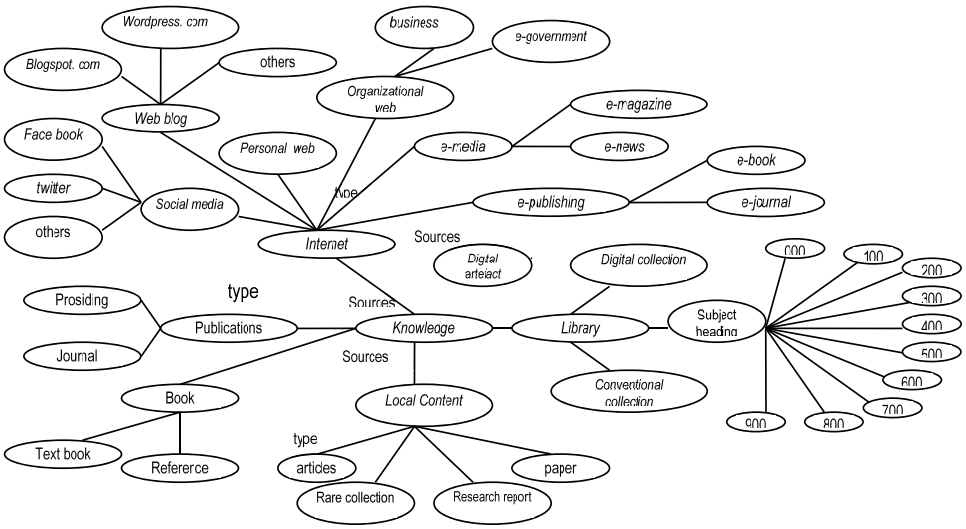

Figure 6: Semantic network of knowledge ontology (modification).

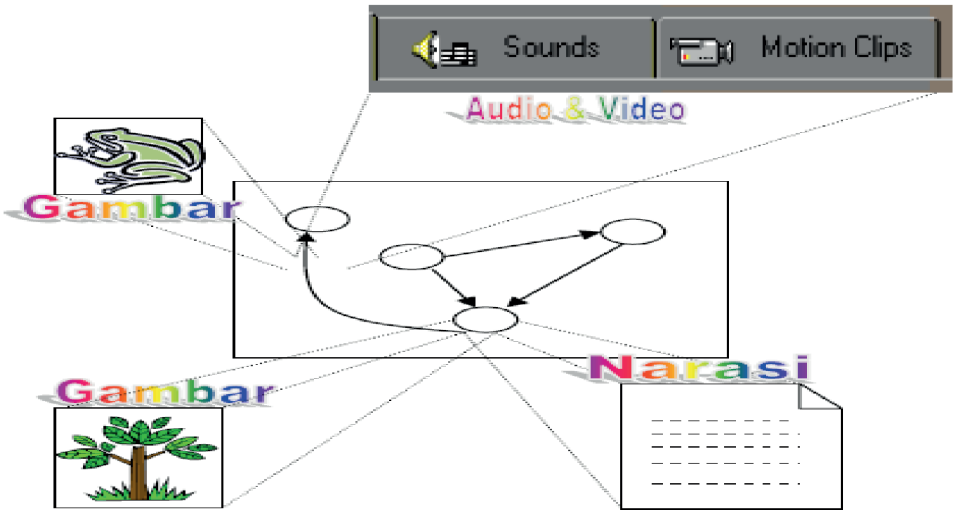

Figure 7: Multimedia view for various knowledge objects.

4.2. Knowledge Service Development

To develop knowledge services, several designs related to this are needed, namely:

4.2.1. Content architecture

Information organizations must contain specialized knowledge repositories. This repository is codified with existing information resources. Search tools should be reticular, nonlinear and three-dimensional: rich, hyperlinked, plus multimedia information entities. Entry points for knowledge construction can be linear, circular, or undifferentiated at the same time. The meaning of mixed and ordered data, information and knowledge: something can be data, information and knowledge at the same time. The relationships

Figure 8: review of knowledge of certain objects (example of anthrax disease).

between the three concepts are fluid and dynamic. Every order, differentiation, pattern, process recognition is purely subjective and is a mental construct used by the user.

4.2.2. Technology architecture

A central knowledge services portal is in development that will provide access to knowledge assets as defined by the content architecture. Knowledge maps are another intellectual instrument that can relate visually and can link pieces of data, information and knowledge. By using flowcharts and other graphic modes, expression, hierarchical, horizontal, casual relationships, relational relationship and inspiration can be demonstrated and conveyed visually.

Information professionals themselves have tacit knowledge that has been codified by the organization. We can utilize knowledge technology to find tacit knowledge. Strong analysis and derivative capabilities are key characteristics of knowledge services that make them different from information services. Aggregate capabilities support different subject services for different users, such as OLAP (on-line analytical processing), data mining, and data visualization.

4.2.3. Architecture of people

Information becomes knowledge when the information has been digested and thought more deeply in someone's mind. A librarian at a library works as a knowledge worker, they are responsible for building knowledge repositories and providing knowledge

services. A knowledge worker codifies explicit knowledge and provides access to published sources. Knowledge workers, as wise newspaper editors should, focus on knowledge generation through the creation of information links and information mapping. Librarians must also have generic intellectual skills such as rhetoric, critical and lateral thinking, quantitative reasoning, and critical philosophy. This is important for future librarians to be able to connect data and information and create a knowledge structure for readers.

4.2.4. Future Development

When readers search for information, they can use different search facilities such as search engines, gateways and virtual libraries, subject catalogs and directory services and other search tools. Readers can utilize all types of sources such as organizational websites, personal home pages and other websites, full text documents, databases, electronic journals and magazines, and other sources owned by the organization.

By using warehouse technology to organize specialized knowledge repositories to search for information from different information sources. And data ware-housing is the use of very large databases that combine all of an organization's data and allow users to access the data directly, create reports, and obtain answers to "what – if" questions. To do this, technology/software is needed that can be used for data mining. Meanwhile, access requires the availability of a knowledge management portal [35].

Mapping knowledge repositories can help discover knowledge structures and relationships. The knowledge map shows where knowledge resides (see Figure 9).

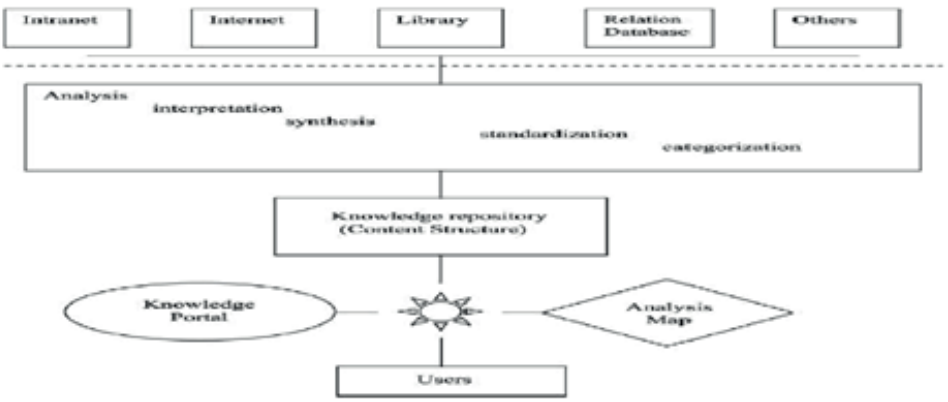

Figure 9: Warehouse technology mapping.

There are three main characteristics of warehouse technology:

(1) Collecting knowledge to create knowledge repositories: internet, digital libraries and other related databases.

(2) Librarians as knowledge workers process knowledge into knowledge that is different from traditional databases.

(3) The main characteristic of a knowledge repository is that it is easy to analyze in order to provide knowledge services.

The success of knowledge services depends on the use of knowledge technology. While knowledge repositories focus on collecting, cleaning, and storing large volumes of knowledge, on-line analytical processing (OLAP) tools provide a way to manipulate and analyze knowledge.

5. Conclusion

Along with the development of information and communication technology (especially web technology), the convergence and increasing compatibility of various technologies has triggered their implementation in library search and information services. This implementation can increase the level of library information services which were initially based on manual services to technology-based information services which are much faster, more accurate and comprehensive. This is beneficial for all parties, both users and libraries. Based on the hierarchy in knowledge formation and the availability of supporting technology, currently information services can be upgraded to knowledge services. Knowledge repositories transform data and information into knowledge in order to provide knowledge services in libraries. Knowledge services are services that combine various data and information for certain topics from various resources (repositories) available via the network to be presented to readers.

The goal of knowledge services is to provide a high level of service through the effective use of knowledge, so that specialized repositories can be accessed and used, and analytical tools can be applied to achieve the user's goals. It is important to organize new model knowledge services that use knowledge service platforms and knowledge warehouses.

References

[1] Saw G, Todd H. Library 3.0: Where art our skills? Paper on World Library and Information Congress: 73rd IFLA General Conference and Council; 2007 19-23 August, Durban, South Africa. [cited 2010 December 29] Available from: http://archive.ifla.org/IV/ifla73/papers/151-saw_Todd-en.pdf

[2] Prensky M. Digital Natives, Digital Immigrants. From On the Horizon (MCB University Press, Vol. 9 No. 5, October 2001) [cited 2012 March 9] Available from: https://www.marcprensky.com/writing/ Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

[3] McCrindle M. Generation Alpha: Mark McCrindle Q & A with the New York Times; 2019. [cited 2019 September 9] Available from: https://mccrindle.com.au/insights/blog/generation-alpha-mark-mccrindle-q-new-york-times/

[4] Ku DT, Soulier JS. The effects of learning goals on learning performance of field-dependent and field-independent late adolescents in a hypertext environment. Adolescence. 2009;44(175):651–64.

[5] Syaikhu A. Komputasi Awan (Cloud Computing) Perpustakaan Pertanian. Jurnal Pustakawan Indonesia; 2010 Vol.10 No.1.

[6] Winardi. Manajemen Perubahan (The Management of Change), cet. ke 2. Jakarta: Kencana; 2006. p. 11.

[7] Frances Hesselbein dan Rob Johnston (editor). On leading Change: Strategi Menembus Tantangan Perubahan. Jakarta: Elex Media Komputindo; 2005, p. 55.

[8] Efraim Turban R. Kelly Rainer Jr, Richard E. Potter, Deny Arnos Kwary, Dewi Fitria Sari. Introduction to Information Technology = Pengantar Teknologi Informasi. Jakarta: Salemba Infotek; 2006. p. 680.

[9] Shelly GB, Vermaat ME, Sungkono C. (pent). Menjelajah Dunia Komputer: Hidup dalam Era Digital. 15th ed. Jakarta: Salemba Infotek; 2012. p. 80.

[10] Shelly GB, Vermaat ME, Sungkono C. (pent). Menjelajah Dunia Komputer: Hidup dalam Era Digital. 15th ed. Jakarta: Salemba Infotek; 2012. p. 83.

[11] Sulistyo-Basuki. Dampak dan Implikasi Perubahan Teknologi Pada Perpustakaan (Hand out kuliah). Yogyakarta: Pascasarjana UIN Sunan Kalijaga; 2014. p. 11.

[12] Shelly GB, Vermaat ME, Sungkono C. (pent). Menjelajah Dunia Komputer: Hidup dalam Era Digital. 15th ed. Jakarta: Salemba Infotek; 2012. p. 81.

[13] Sulistyo-Basuki. Dampak dan Implikasi Perubahan Teknologi Pada Perpustakaan (Hand out kuliah). Yogyakarta: Pascasarjana UIN Sunan Kalijaga; 2014. p. 12.

[14] Sulistyo-Basuki. Dampak dan Implikasi Perubahan Teknologi Pada Perpustakaan (Hand out kuliah). Yogyakarta: Pascasarjana UIN Sunan Kalijaga; 2014. p. 12.

[15] Shelly GB, Vermaat ME, Sungkono C. (pent). Menjelajah Dunia Komputer: Hidup dalam Era Digital. 15th ed. Jakarta: Salemba Infotek; 2012. pp. 92–7.

[16] David McNabb E. Knowledge Management in the Public Sector: A Blue Print for Innovation in Government. New York: M. E. Sharpe; 2007.

[17] David McNabb E. Knowledge Management in the Public Sector: A Blue Print for Innovation in Government. New York: M. E. Sharpe; 2007.

[18] Kamil H. Peran Pustakawan dalam Manajemen Pengetahuan. Pustaha. 2005 Jun;1(1):19–22.

[19] Setiarso B. Berbagi Pengetahuan: Siapa yang Mengelola Pengetahuan? 2006. [cited 2008 September 23] Available from: http://www.ilmukomputer.org/wp-content/uploads/2006/09/bse-berbagi.pdf

[20] Br M. Ginting, Kudang Boro Seminar, dan Panji Wasmana. "Pengembangan Sistem Repositori Pengetahuan Berbasis Ontologi dan Jaringan Semantik (Studi Kasus pada Perpustakaan UNIKA St. Thomas Medan)". Jurnal Perpustakaan Pertanian Vol. 19, Nomor 1, 2010 p. 32 – 40.

[21] Muhajir N. Filsafat Ilmu: Positivisme, Post Positivisme, dan Post Modernisme, Edisi II. Yogyakarta: Rakesarasin; 2001.

[22] Br M. Ginting, Kudang Boro Seminar, dan Panji Wasmana. "Pengembangan Sistem Repositori Pengetahuan Berbasis Ontologi dan Jaringan Semantik (Studi Kasus pada Perpustakaan UNIKA St. Thomas Medan)". Jurnal Perpustakaan Pertanian Vol. 19, Nomor 1, 2010 p. 32 – 40.

[23] Setiarso B. Berbagi Pengetahuan: Siapa yang Mengelola Pengetahuan? 2006. [cited 2008 September 23] Available from: http://www.ilmukomputer.org/wp-content/uploads/2006/09/bse-berbagi.pdf

[24] Chatti MA, Klamma R, Jarke M, Naeve A. The Web 2.0 Driven SECI Model Based Learning Process. [Cited 2011 Mei 9] Available from: http://kmr.nada.kth.se/papers/TEL/CKJN_ICALT07.pdf

[25] Chatti MA, Klamma R, Jarke M, Naeve A. The Web 2.0 Driven SECI Model Based Learning Process. [Cited 2011 Mei 9] Available from: http://kmr.nada.kth.se/papers/TEL/CKJN_ICALT07.pdf

[26] Winardi. Manajemen Perubahan (The Management of Change), cet. ke 2. Jakarta: Kencana; 2006. p. 12.

[27] Azwar S. Metode Penelitian. Yogyakarta: Pustaka Pelajar; 1998. p. 6.

[28] Azwar S. Metode Penelitian. Yogyakarta: Pustaka Pelajar; 1998. p. 7.

[29] Azwar S. Metode Penelitian. Yogyakarta: Pustaka Pelajar; 1998. p. 5.

[30] Lillrank P. The quality of information. Int J Qual Reliab Manage. 2002;20(6):691–703.

[31] A. Woodsworth dan JF II Williams. Managing the Economics of Owning, Leasing and Contracting out Information Services. Brookfield. Aldershot: Ashgate; 1993.

[32] Allee V. The Knowledge Evolution. Oxford: Butterworth-Heinemann; 1997.

[33] Seminar KB. Manajemen Layanan Perpustakaan Dengan Dokumen Multimedia. 2003. p. 14. [[cited 2014 Dec 9]], Available from http://eprints.rclis.org/9219/1/vol_4_no_1_art_kudang.pdf

[34] Br M. Ginting, Kudang Boro Seminar, dan Panji Wasmana. “Pengembangan Sistem Repositori Pengetahuan Berbasis Ontologi dan Jaringan Semantik (Studi Kasus pada Perpustakaan UNIKA St. Thomas Medan)”. Jurnal Perpustakaan Pertanian Vol. 19, Nomor 1, 2010, p. 37.

[35] Daft RL, Angelica D. (pent.). Management = Manajemen, buku2. 6th ed. Jakarta: Salemba Empat; 2006. p. 586.