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Audit on Knowledge Spectrum

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ABSTRACT

Background: The most common topic on auditing within Information Management field generally will focusing on the information audit and knowledge audit. It is rarely seen a paper that highlighting from the starting of data audit, information audit and lastly the knowledge audit. Data, information and knowledge is the element that made up the knowledge spectrum. It is unfortunate since each of them associated and related to each other in their own way. Therefore, this paper will be discussing on auditing knowledge spectrum that will start from the bottom side of knowledge spectrum that is data then information and lastly knowledge. Besides that, this study also will be briefly elaborating on every methodology and model each of knowledge spectrum auditing that have been proposed by the previous prominent scholars.

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INTRODUCTION

Auditing is all about the evaluation of the company's internal control effectiveness. An effectiveness of auditing system is essential as it provides a company a platform to pursue their company mission vision and as well as their objectives. There are many types of auditing; financial, communication and also information audit. It is proven that the auditing system is a technique of management that applied to every aspect of resources stored in an organization. As for today, information is one of critical resources and assets of an organization. Through this importance, it is equally essential for information to undergo auditing to ensure its effectiveness and later will contribute to the organization. The information audit enhances the effectiveness of information management in a company as it provides accurate and complete information on the information environment in the organization, and at the same time act as understanding the organization functions. Besides, this auditing process will assist the organization to aware on the presence and location of all necessary information. Hence, ensuring that those information are well utilized in supporting the business processes.

Knowledge Spectrum:

Knowledge spectrum generally about the extent someone well-known for something. The spectrum itself defines the ordered array, thus there are several elements comprises and build up as knowledge spectrum. As shown in the figure below, the Knowledge Spectrum's elements consist of data, information, knowledge and wisdom.

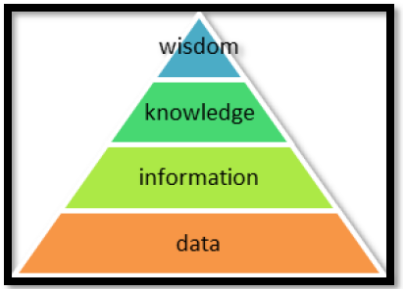

Fig. 1: Knowledge Spectrum.

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Data, information and knowledge are associately related terms, however, each of it has its own role in relation to the other. Meanwhile, knowledge is derived from extensive amounts of experience dealing with information on a subject. Wisdom is reached when someone is having a good knowledge in one particular field and able to create a theory driven by his understanding and knowledge. Data is a piece of information. It is usually formatted in a special way. Data can exist in a variety of forms. It is a raw or an unorganized form such as alphabets, numbers, or symbols. According to Hicks (1993), data is a depiction of facts, concepts or instruction in a formalized manner for communication, interpretation, or processing by human or by automatic means. Data have to be documented in a standard structure so that they will be able to analyze and processed later.

The information is totally differs to data, as it has value. It is also affecting behavior, a decision, or an outcome. An information is valueless when, after receiving a piece of it, there are no changes in a thing. Information is a medium of communication between sender and receiver and the message is intended to increase knowledge in recipients. Information is resulted from the processed data and it is meaningful to the receiver (Davis & Olson, 1985). Knowledge is referring to the extent in what someone knows, and also what their belief. Knowledge act as a platform on a repository of reservoir of information that is stored in the human mind.

When information is sufficiently integrated, it made up the knowledge. Thus, information act as the as the mediating agent in the production of knowledge, and as important structures that enhance the generation of knowledge. Wisdom is defined as someone's ability to think and to act by applying and by using the knowledge, experience, at the same time their own understanding, common sense, and insight. It is the highest degree in the knowledge spectrum as this implies a knowledge and ability to well understand and restructure it in order to apply to the given circumstance. The understanding in involve the understanding of people, things, events, and situations. At the end of the day, wisdom enables the ability to apply perception, judgement, and action in conjunction with the understanding of what is the optimal course of action.

Audit in Knowledge Spectrum:

Data Audit (DA):

Data is the first element in knowledge spectrum and it simply exists and has no significance beyond its existence. It is the lifeblood of organizations because data helps in running business operation currently and in future. Organization need to aware about the health of their data by implementing data audit. A data audit refers to the auditing of data to assess its quality or utility for a specific purpose (Jones, 2008). For example the organizations that run the business to business (B2B) activities usually have their own organized database as a company or contact records and has a number of related fields such as address, telephone, email, revenue and so on. So the data audit process is to ensure the data quality from the beginning to the destination in a repeatable and measured way. Data audit can be used to make sure the quality of the data is continuously consistent. The analysis of this content can be in terms of the information that exists in the data field, completeness of data, data validation, data format and data coverage

Importance of Data Audit:

The implementation of audit will provide the important information, raising awareness of collection strengths and data issues to improve the strategy. Through the audit activities, duplication of effort and areas that require additional requirement can be highlighted. It also allows an organization to put its resource to best use and highlight inadequacies in data creation practices, amendments of the policy base on the risk faced. An organization that is knowledgeable about the importance of its data will maximize the value of their collections by continuous use. It can be concluded that auditing data bring three main benefits which are efficiency savings through the prioritization of resources, ability to manage risks related with data lost and irretrievability and improving access and reuse through the awareness about the value of the data.

Data Audit Methodology:

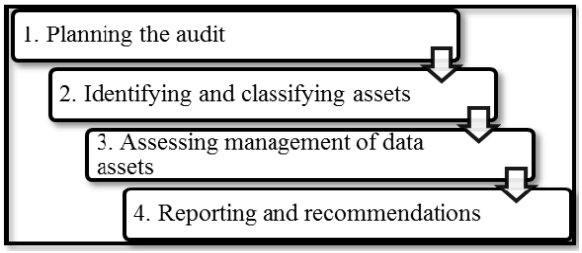

Fig. 2: Stages in data audit framework methodologies.
(*Source: Jones, Ross and Ruusalep, 2008*).

The above figure shows the data audit methodology that consists of four stages. During the first stage, the scope of audit is defined. The meeting with the organization's staff is scheduled and the so that the time spent with them during preliminary research can be optimized. The second stage objective to identify the type of the data assets that exist and classify them according to their value to the organization. The classifying phase is important because it determines the scope of further audit activities and the vital assets are assessed in depth in the third stage. The information collected helps to point out the weaknesses on data policy and current data creation and the procedures and it will provide the recommendations in the final stage of the audit process. The knowledge gained will help the organizations to improve its data management policies and processes.

Information Audit (IA):

In general, the information audit is the systematic process that is being conducted in order to manage the information and the requirements exists in an organization. The auditing process will then assist the organization to understand the flow of information that occurs within the organization. According to Robertson (1997), IA is the systematic analysis of information use, resources and flows. The author further explained that the aim of IA is to identify how the information matches to the organization's objectives. IA is the steps to discover, monitor and evaluate the information resources of an organization in implementing, maintaining and improving the organization's information management (Buchanan and Gibb, 1998).

Orna (1999) on the hand discussed that the IA as a systematic evaluation of information use, resources and flows by verifying and referring to both people and existing documents. Orna also stated that this IA is being transmitted in parliamentary procedure to recognize how they are connected to the organization's objectives. Other than that, Henczel (2001) described that IA is the cognitive operation that effectively shape the current information environment in an organization. This process will help to identify the information required to meet the needs of an organization. On top of that, Henczel also stated that the IA process will help the information mapping on the flows of information throughout the organization and between the organization as well as the external environment.

Therefore, IA is one of the essential process or component in an organization, especially in the way the organization handles the information resources. An information audit is actually a systematic process through which an organization can understand its knowledge and information needs, what it experiences, the information flows and gaps. Hence, the results or output of the auditing process is the Information Map. The Information Map is useful as the groundwork for designing e-government solutions, as well as for the creation of a corporate information strategy or a knowledge management scheme.

Importance of Information Audit:

Currently, information and knowledge are distinguished as the core assets of any governing body. Both are the essential resource of an organization in developing citizen centric and cost effective services. The primary benefit of an information audit is the growth of a much better understanding of these assets, and how it can be used to utilize to induce the creativity and invention. Dubois (1995) highlighted six (6) reasons on the needs of Information Audit, which are: identifying resources, services and information flows, verifying the existence of appropriate services, rationalize resources, controlling costs, improving marketability of services by increased visibility, and exploring the results improvements. While, according to Botha and Boon (2003), Information Audit is being taken with the aim of gathering the information requires, in managing the information resources effectively, which aid in achieving the organizational objectives. Overall, it can be said that in order for an organization to have an effective information management practices, information should be recognized as a vital process and becomes part of organizational planning.

Information Audit Methodology:

Currently, there is no standard methodological approach of Information Audit (IA). Buchanan and Gibb (2007) agreed to this and said that the lack of standard methodology lead to the problems in selecting the best method. Aleliunas and Atkociuniene (2010) also mentioned that the absence of standard methodological cause to a minimum level of acceptance of the information audit performance in an organization. Sidlichovska (2011) highlighted that a standardized audit will enable a direct comparison of the information management performance of a group in the organization to be made. However, in recent studies, most of the researchers agreed to cite to the Henczel seven-stage model as guidance in conducting the IA. This model is being chosen because it is concentrating on the strategic direction of the organization, incorporating the Information Technology (IT) into the overall process, and highlighted on the evolution of IT within the organization.

The figure above shows the Henczel's IA model. It is clearly described that each stage needs to be completed before proceeding to the next stage. The beginning stage of this methodology is on planning, which includes the planning and submission of the business case for the organization's approval. Five basic steps involved in this stage which are included, understand the organization and construct clear objectives, define the scope and resource allocation, choose a methodology, prepare a communication strategy and obtain the

management support. The second stage suggested by the model is the data collection stage. This stage requires the data needed to achieve the objectives being collected. Several techniques can be applied in collecting the data, which are through questionnaires, personal interviews or focus group interview. The main concern in this stage is on the participants or respondents to answer the questions asked, so that those data collected are usable.

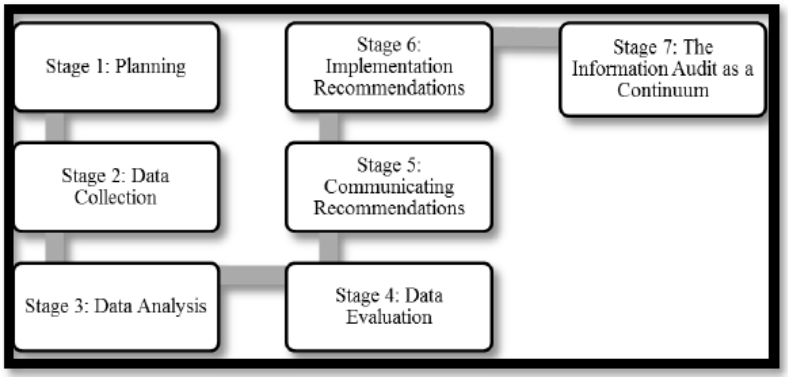

Fig. 3: Henczel's seven-stages model.
(*Source: Henczel, 2001*)

Once the data being collected, auditors can proceed to stage three which is data analysis. Depending on the availability of the resources, complexity and volume of data collected, the analysis stage can be done either in-house or by external. It is suggested by Henczel that to outsource the analysis part, since this stage requires a specialist skill. Three types of analysis, that are general analysis, strategic significance analysis and information flow mapping should be conducted. The fourth stage is data evaluation. This stage involves the data to be evaluated within the organization's context. This stage will reveal the current situation of the organization's information environment. Problems are being identified and suggestions are being formulated.

The next stage is communicating recommendations. As stated by Henczel, there are several ways to communicate the recommendation formulated earlier like written report, oral presentation, seminars or workshops, newsletters, bulletins and websites, but it depends solely on the size of the organization and the recommendations' scope. The people who should be informed are including those who has supported the audit, sponsors, directing participants and people who will be affected by the changes. The sixth stage of Henczel seven-stage model is implementing the recommendations. This stage requires a plan to be developed. The plan should highlight on the right or suitable time to implement the recommendations formulated in the stage five and the way those recommendations should be carried out. This plan should be carefully developed to ensure that the implementations are success and affect the organization in the best way. The last stage of this model stated that the Information Audit (IA) as a continuum. This stage stressed that the IA is a continuous process.The organization should always conduct the auditing process to assure that the data gathered initially are re-accessible and updated. Thus, it can be said that the Information Audit is a cyclic process. This Henczel seven-stage model is very clear and understandable. This methodology can be suggested as a standard procedure in conducting the Information Audit (IA) process. It is a must for an organization to understand the model and assign the auditors to conduct the IA. It is deniable that the IA emphasize on analyzing the accuracy, appropriateness, reliability and the needs of the information. Thus, a proper procedure or method is really needed.

Knowledge Audit (KA):

Knowledge Audit (KA) is important in organization which play critical role in leveraging the knowledge in the organization. KA helps the organization make an effective Knowledge Management. KA is an important tool for monitoring Knowledge Management implementation and initiatives in the organization. KA helps to identify knowledge management strengths, weaknesses, opportunities and threats in the organization. The focus of the evaluation is to identify key knowledge areas and to measure whether they are being effectively captured or shared. A KA is an assessment of the way knowledge processes meet an organization's knowledge goals. KA is similar to other audit processes and methodologies which aim to examine the company status and also on the knowledge availability and further needs.

It also identifies the knowledge flows and sharing among employees besides knowledge usage in business processes for adding value to the organization. The concept of KA is various in research and also in business practice based on the different author's opinion. According to Dalkir as cited in Gourova, Antonova and Todorova (2009), the KA identify the core information and knowledge needs and uses within the organization, their knowledge gaps, duplication and flow, how they contribute to business goals, and improvement needed.

According to Henczel (2000), a KA is conducted to identify an organization's knowledge assets, how the knowledge is produced and who is produced that knowledge. If an information audit has already been conducted, a KA will also allow assigning a level of strategic significance or importance to those knowledge assets using the organizational data already established. This is to ensure that not only know the existing knowledge assets, but identify the critical success to the organization.

Importance of Knowledge Audit:

Knowledge Audit (KA) is an effort to understand where an organization managing the knowledge in terms of Knowledge Management. It is a systematic method of determining status critical knowledge in organizations. KA is very important to all organizations because it helps the organization clearly identify what knowledge is needed to support overall individual, team activities and also organization goals. It provides evidence of the extent to which knowledge is being effectively managed in the organization and indicates where improvements are required when the knowledge being audited. So that, it provides vital information for the development of effective knowledge management programs and initiatives that are directly relevant to the organization's specific knowledge needs and current situation. The organization also will fully utilize the knowledge in their company. Other than that, it is important to apply the KA in the organization because KA is a critical step for Knowledge Management in organizations. It supports the initial Knowledge Management implementation, the evaluation of its results. KA also supports the decision making process in the organizations for making greater use of knowledge, strengths and the competitive advantages of the organization. Besides that, KA also provides a map of what knowledge exists in the organization and the location of that knowledge as well as reveal knowledge gaps besides providing a map of knowledge and communication flows and networks.

Knowledge Audit Methodology:

There are several ways in conducting Knowledge Audit (KA). Gourova, Antonova and Todorova (2009) have introduced three phases of the KA process in the organization. KA process should be as follows: (1) The first phase has defined the main parameters of the KA which includes planning of its scope, activities and time schedule. After that selecting the right KA Team, which plays an important role in the KA outcomes. Next is, identify the methodology on how to perform and implement successfully specific KA tasks and activities. (2) The second phase relates to the actual KA implementation which firstly develops KA questionnaire according to specific organizational needs. In this phase also, it needs to identify the methodology for KA distribution and notification of the target audience. The questionnaires can distribute to the target audience or respondents via email, electronic questionnaires, conducting interviews and also distributing a set of questionnaires. Besides that, in this phase also need an analysis of the KA results, testing and verify the hypothesis based on the collected quantitative and qualitative data. (3) The third phase is KA finalization which includes preparation and presentation of the meaningful KA Report as the major outcome of KA. It will lead to Knowledge Management Roadmap consideration which the stages of the Knowledge Management in organizations.

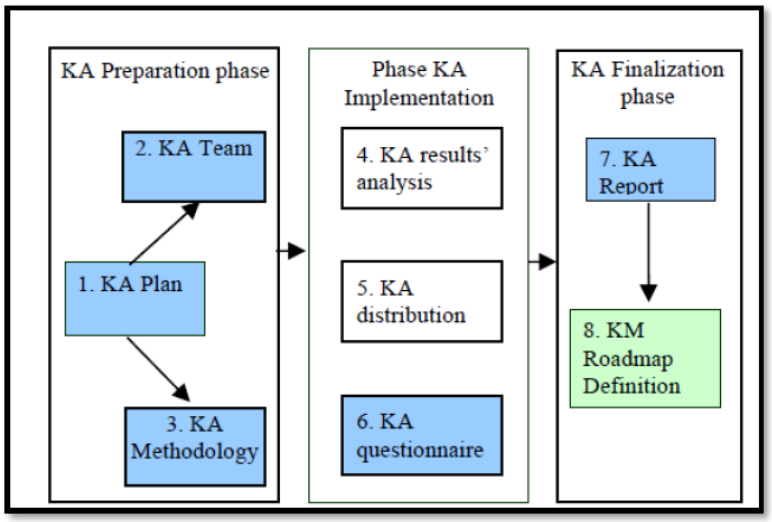

Fig. 4: Knowledge Audit Process.
(Source: Gourova, Antonova and Todorova, 2009)

Findings and Discussions:

Overall, it can be said that the information audit is a process that will effectively appoint the current information by recognize what information is required to meet the organization requirement. The information audit will enhance to the knowledge audit activities because the audit information will directly increase the level of understanding and enhance the tasks and activities conducted by a various subdivision within the organizational environment that will cause the knowledge that was created. In addition, it has a relation between all the audit activities as mention by Henczel (2000) which explained about 'data to information to knowledge' process that occurs in every organization as shown in the figure below:

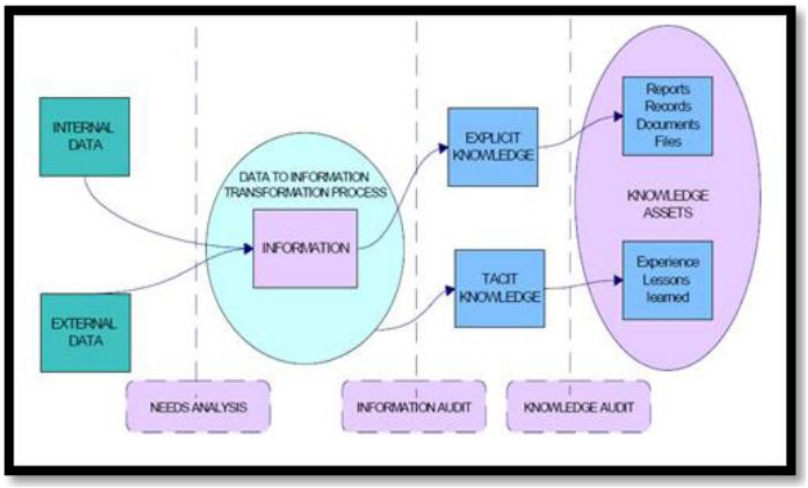

Fig. 5: From needs analysis to knowledge audit.
(*Sources: Henczel, 2000*)

The figure above shows about the three audits that are used to move an organization from information management to knowledge management that needs the analysis process, the information audit activities and also the knowledge audit process. The process of needs analysis, it needed the users to what information resources or services they need to perform that each person needed in the organization. This analysis process was used to make the compilation of an acquisition process which is determining what will be bought and who will it be bought for. Meanwhile, it also can enhance the delivery mechanisms that increasingly with the right resources to the people who need them and also the service levels that definitely which requires a specific service and at what level. Information audit is function to know what information resources and services that people need to do and how to use of those actual information resources and services. It also can map the information directly within the organization and also between organizations to its external environment that will identify the existing formal and informal communication channels that are used to transfer information and stress inefficiencies all barriers. A knowledge audit is conducted to identify an organization's knowledge assets, who are producing it and how the processes are taking part. If the information audit was already conducted, a knowledge audit can also enhance to deploy a level of importance to those knowledge assets using the organizational data already created to ensure that not only know the existing of knowledge assets, but to identify the importance of it for the organizational success.

Limitation and Recommendation:

Based on the observation of the many authors, it can clearly state and it also was agreed that that there is no standard of methodological approach within the information audit field and it make the auditing practitioners often be compile all the information standard or agreed methodological approach through a variety of methods that are clearly contained various steps that are not structured and diversified. Basically, the authors are developing whether by created it or adopted these standards of the information audit methodologies from three elements up to ten elements of information auditing methodologies. In a nutshell, it suggested that to use one common standard methodologies in the organization so that all the organization are following the same standard that more organized and have a clear stage and more reliable. Based on all the auditing methodologies listed in the previous part of this paper, it was suggested to use Henczel's seven-stage information audit model. Information auditing should focus more on the strategic direction of the organization and that is the initial step. It was recommended since every stage involved in the process is clearly stated. Besides, this model can be used as a guideline in conducting the auditing process. Every stage needs to be completed before proceeding to the

next. Thus, it can be said that this model is being organized well and move accordingly for each step if compared to the others methodologies models.

Conclusion:

As a conclusion, the information audit is a systematic process that the organization can understand the process of knowledge and information needs, the flow of information and the information gaps. People within an organization have their own role to create the information and used it, whether they have realized it or not. The positive side effects of this process, including well managed information audit lead to raise the awareness in the organization towards the value of information and the value of sharing knowledge as well as the development of an organization to have a better understanding towards the organizational asset and how it can be used to stimulate creativity and innovation. Because of this reason, it needed a top-down and bottom up approach to look at all the information flows, barriers, and also an inefficiency of information. However, to achieve all the objectives of the information audit, collect all the data and information and also development of practical proposals, it was suggested that to have a mix methods like interview process and others to gather the information and focus groups need to be used.

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