

A COMPREHENSIVE MODEL OF KNOWLEDGE MANAGEMENT AUDIT BASED ON SYSTEMATIC REVIEW IN 7 STAGES

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Abstract - Incomplete or incomprehensive execution of the knowledge management audit has caused many knowledge management programs to fail. We need to understand the fact that managing organizational knowledge recourses is as important as managing conventional organization resources. Knowledge management is a method, which aims to help organizations to effectively use knowledge. A study was undertaken to investigate how knowledge management audits are performed systematically in organizations and present a comprehensive model for performing knowledge management audits based on a systematic review in 7 stage. Though there are knowledge audit models proposed in the past by other researches, these models still have many drawbacks. This paper aims to address these drawbacks by proposing a 7-stage Knowledge Audit Model; derived from a comparative study on knowledge audit methodologies. These 7 stages are centered on systematic review and integrates the development of appropriate knowledge management strategies. The practical implementation of this knowledge audit model for knowledge auditing allows for the investigation and analysis of the current knowledge environment and desirable knowledge management.

Keywords - Knowledge Management, Auditing, Comprehensive Knowledge Audit, Systematic Review, 7-Stage Knowledge Audit.

I. INTRODUCTION

Knowledge is generally distinguished as the most vital, strategic asset that an organization possess (Henczel, 2000). In this 21st century, this statement is a fact as knowledge grows constantly to meet the challenging needs of various areas of expertise, interests and subjects. As such, organizations are challenged today to develop appropriate knowledge management strategies to better manage its corporate knowledge to gain competitive advantage. Zack in his article managing organizational Ignorance suggested that knowledge management guidelines are needed by organizations to help them identify and respond to the varies knowledge problems that is linked to what they don't know or don't understand (Zack, 1999). Gottschalk (2005) defines knowledge management as the process of gathering, generating and synthesizing and sharing information, reflections, insights, thoughts and experience to achieve corporate goals (Gottschalk, 2005). A knowledge management audit(KMA) is usually the first phase which initiates a knowledge management activity / project. The next subsections of this paper will present the extended literature review on KMA.

I. review on knowledge management audit (kma)

The KMA is the first stage of KM implementation. It is necessary to perform a KMA before defining a management strategy. Unfortunately, KMAs are seldom performed in organizations. Studies have shown that organizations will fail in their KM programs unless they perform KMAs.

The KMA therefore concentrates on the determination of the existing types of knowledge, required knowledge, individuals in need of each type of

knowledge, and strategies for solving problems using each type of knowledge.

However, most organizations are not aware of the need for KMAs. The following question may be posed: How is a KMA performed? Different methods and stages are described in different articles. Most of the suggested methods have been applied somewhere. To perform a successful KMA, it is necessary to consider many aspects of the organization. The models presented in previous sources have not considered all of the various relevant aspects of the organization.

II. RESEARCH OBJECTIVE AND SCOPE

The aim of this study was to present a comprehensive model for executing KMAs in organizations based on a systematic review in 7 stages. The drawbacks of the current knowledge audit models and incorporates comprehensive phases in the audit which allow for:

1. The investigation and analysis of the current knowledge environment,
2. The measurement of the risk and opportunities faced by an organization with respect to its "knowledge health", and
3. The recommendation of appropriate knowledge management strategies to be undertaken.

In addition, this research also aims to propose a knowledge audit plan which incorporates the proposed knowledge audit model with details of the specific objectives activities and tools involved in each stage. A qualitative evaluation shall be utilized for this research project leveraging on the review by Subject Matter Experts (SMEs) to evaluate the efficiency and effectiveness of the proposed model.

For this purpose, the author will study the research carried out on the recent years, and, by analyzing the indicators and coding the components in the models, we will look at the comparison of the proposed conceptual models. Accordingly, Table 1 outlines the models presented in 2010-2015.

Row	Author/s	Year	Step of KMA
1	Shahmoradi et al	2015	Step 1: Understanding the organization Step 2: Knowledge Management Audit Premises Step 3: Knowledge Management Infrastructure Step 4: Determine the status of knowledge management in the organization Step 5: Analyzing the Knowledge Management Audit Data Step 6: Using Analyzed Data Forward
2	Alwan et al	2015	Step 1: Organizational Analysis Step 2: Determine Audit for Project Objectives Step 3: Knowledge Findings Process Step 4: Collect data Step 5: Determine the Knowledge Process Step 6: Rank the audit result Step 7: Knowledge Capital Encoding Step 8: Approve the result
3	Chowdhuri	2015	1- A list of knowledge items (Knowledge and knowledge needs of the current one in a single page) 2- Presentation of knowledge network map 3 Social network map. 4. Identify critical situations and future knowledge needs and organizational vacuum
4	Jafari et al	2013	1. Identifying organization's knowledge objectives 2. Identifying organization's experts Identifying organization's knowledge documents Determining organization's enjoyment of knowledge 3. Determining knowledge importance 6. Auditing organization's knowledge situation
5	Veithi & Skovira	2012	Phase 1: Infrastructure Evaluation 1- Analysis of existing infrastructure 2- Matching knowledge management with business strategy Phase 2: Analyzing, Designing and Developing a Knowledge Management System 3- Designing Knowledge Management Infrastructure 4. Capital audit and existing knowledge system 5. Designing a Knowledge Management Team 6. Creating a knowledge management plan 7. Development of knowledge management system Phase 3: Expansion 8. Expansion, using a progressive methodological approach 9. Manage the structure of encouragement, culture and change Phase 4: Evaluation 10. Performance evaluation, capital efficiency measurement and refinement of the KMA system and feedback
6	Gansan & Dominic	2012	Stage 1: Assessing Organizational Culture and Information Stage 2: Determine and Prioritize Main Organizational Processes Stage 3: Measure the accuracy of existing knowledge Stage 4: Knowledge Audit Report Stage 5: Recommendations for Knowledge Management Strategies Stage 6: Continuing knowledge audit
7	Sharma et al	2011	1. Analysis of knowledge needs in 5 organizations 2. Checklist analysis library, an information 3. Analysis of knowledge currents
8	Russ et al	2012	1. A brief description of organization and environment Description of knowledge audit's expected merits a Knowing about the main external sources of knowledge b Main internal sources' information about competitive knowledge c Knowledge management strategy d Knowledge-related programs and projects
9	Lo'pez-Nicola's et al	2010	a Strategy analysis b Designing knowledge management systems and reasoning capital
10	An's and Ayuso	2010	a. SWOT analysis b. Objectives definition c. Determining knowledge management suitable strategies d. Definition of critical success factors

Table 1. Study Characteristics between 2010-2015

		Stage 1: Study of analysis and organization				Stage 2: Preliminary activity for KMA		Stage 3: KM Infrastructure		Stage 4: Determinatio n of KM situation			Stage 5: Analysis of KMA result		Stage6: Use of analyzed data							Stage 7: Continues RE –Audit				
		Identify the Mission, Vision, Goals and objectives	Define Success factors	SWOT analysis	Business core process of organization	Supporting management system	Organization of KMA team	Determining of KMA methodology	Concentrating of KM process	Information Technology system	Culture Evaluation	Knowledge Inventory	Knowledge Flow	Knowledge Recourses	Knowledge Mapping	Gap Analysis	Social network Analysis	Knowledge Network Analysis	Specifying problem	Result reporting of KMA	Informing the result	Present the priorities and solutions	Providing Suggestions	Present suitable KM strategies	Design action plan of KM	Implementation of new Strategies
1	Shahmoradi et al	*	*	*	*		*	*	*		*		*		*		*	*	*		*		*		*	
2	Alwan et al	*	*	*	*	*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	*	*	*	*
3	Chowdhuri	*	*	*	*		*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4	Jafari et al	*				*	*	*		*	*	*	*	*	*	*										*
5	Veithi & Skovira	*	*	*	*			*		*	*	*	*	*	*	*										
6	Gansan & Dominic	*	*	*	*		*	*		*	*		*	*	*	*		*	*	*	*	*	*	*	*	*
7	Sharma et al				*					*	*	*	*	*	*				*	*						
8	Russ et al	*	*	*	*			*		*	*	*	*	*	*	*										
9	Lo'pez-Nicola's et al	*	*	*						*	*															
10	Ari's and Ayuso	*	*	*	*																					

Table 2. Key Element in KMA

III. DISCUSSION

In general, the studies included do not provide comprehensive treatments of KMA execution. Each study focuses on particular items that should be considered while executing a KMA.

The KMA is the first stage of all KM programs in organizations. An organization will undoubtedly fail in the implementation of its KM program if it does not perform a KMA. The importance of KMAs has been established in various sources. A model has been proposed for performing KMAs based on previous studies from the literature (Table 1). This model is quite comprehensive and relies on the support of the top manager.

The support of the top manager in an organization is necessary before each step of the KMA. Conducting meetings with the senior management and other key people in the organization has many benefits, including the following:

- specifying the audit goals,
- describing the expected benefits of the KMA,
- specifying the core business processes,
- specifying the knowledge areas,
- specifying the main knowledge areas based on their final effect on the key performance indicators,
- specifying the audit methodology, and
- determining the key people in the organization.

Obtaining the support of the top manager is the first step in the suggested model to achieve the benefits listed above. The organization of the KMA team and determination of the KMA methodology should also be before executing the KMA.

Following preparation for the KMA, it is necessary to study the organization, define the critical success factors, perform a SWOT analysis, and define the core business processes. These items are included in the suggested model depicted in Table 2.

To succeed in each KM initiative, it is important that individuals be aware of the benefits of KM. The awareness of individuals can be increased through seminars and distribution of brochures.

These activities have therefore been considered in the suggested model.

After performing the preliminary activities, the next steps are analysis of the information technology infrastructure and identification of the core knowledge processes to define the KM situation.

A meeting should be conducted with the top manager and other key people who are involved in the key business processes. This meeting is held by the KMA team. The team prepares the KMA tools after the above activities. These tools assist the KMA team in specifying the situation of the organization's KM (knowledge capture, storage, organization, distribution, use, and creation). An interview to prepare a knowledge inventory is included in the suggested KMA execution model. Gap analysis can be performed to determine the gap between the existing and desired knowledge using the data gathered in the

previous step. The following activities are then recommended: reporting of the results, determination of the knowledge-related obstacles and problems and their priorities, presentation of the list of solutions and details on how to execute them, prioritization of the solutions and selection of the best ones, and presentation of an action plan. Note that KMAs must be continuous.

IV. PROBLEM STATEMENT

As highlighted by Henczel (2000), the low regard of knowledge audit has been a contributing factor to the top-heavy high knowledge management failures over the years is a fact. Though there are knowledge audit models proposed in the past by other researches, these models still have many drawbacks as detailed below. Most knowledge audit models:

1. Do not begin with a knowledge culture assessment to investigate the readiness of the organization to adopt on a knowledge management strategy (Cheung at el., 2007).
2. Fails to establish a clear strategy which clarifies the appropriate area in which the knowledge audit should be initiated where it attempts to audit everything without taking into consideration the degree of its significance to the organization (Perez-Soltero at el., 2006).
3. Fails to determine the measurement criteria to verify the impact related to Knowledge management processes (Perez-Soltero at el., 2006).
4. Does not include the construction of a knowledge network analysis to understand the knowledge acquiring methods. The knowledge inventory, knowledge flow or knowledge map does not provide this information.
5. Does not provide recommendations of the appropriate knowledge management strategy to be undertaken based on the knowledge audit report.
6. Are not tested to detect problems or opportunities, and further improvements are not proposed (Perez-Soltero at el., 2006).

The proposed 7-stage KMA model (Figure 1) addresses all these drawbacks.

V. RESEARCH METHODOLOGY AND FRAMEWORK

A qualitative evaluation shall be utilized as a part of the research methodology and this involves the following 3 phases.

A. Phase 1 - A Comparative Study

Based on the substantive and relevant information studied from the recent researches on the various knowledge audit models, 2 models will be chosen as study objects. Both models will be analyzed to study the relevancy of all the stages involved. Such a

qualitative approach is valuable here to identify the gaps between each model.

B.Phase 2 - Development of A Hybrid Model Based on the drawbacks of the current knowledge audit models, together with the comparative studies performed in phase 1 a hybrid model is developed. The model is customized to incorporate the comprehensive outlook which allows for:

- 1.The investigation and analysis of the current knowledge environment
- 2.The measurement of the risk and opportunities faced by an organization with respect to its “knowledge health”
- 3.The recommendation of appropriate knowledge management strategies to be undertaken.

C. Phase 3 - Review of Proposed Model with Subject Matter Experts (SMEs)

A qualitative evaluation shall be utilized for this research project leveraging on the review by Subject Matter Experts (SMEs) to evaluate the efficiency and effectiveness of the proposed model.

VI. PROPOSED 7-STAGE KNOWLEDGE AUDIT MODEL

It is important to note, that the set of stages / phases contained within both methodologies discussed in section 2 is important in performing a comprehensive knowledge audit. The table below provides a clearer picture on the drawbacks addressed in both model. The comparative study will stand as a basis to derive the new comprehensive knowledge audit methodology. Table 2 illustrates the 7-stage knowledge audit model and explains important elements which defined this model as a comprehensive audit model based on mentioned phases.

The objectives, tools and techniques involved in each stage of the proposed model (Figure 1) is explained in detail below:

Stage 1: Study of analysis and organization

The objective of this stage is to first identify all organizational strategic information to gain a clearer picture on the knowledge needs of the organization. Secondly, determining the tools involved are organization visits, organizational documentation reviews, interviews, observations, and KM Quick Scan.

Stage 2: Preliminary activity for KMA

The objective of this stage is to identify the core process related to the organization. This would be done to identify the critical knowledge related to these processes that needs to be managed. The second objective would be to prioritize and select core processes that have a direct relationship with the organization's performance (Uses measurement criteria as defined by the organization). The third objective is to identify and meet the key people directly linked to these processes. Support tools include questionnaires, general organizational

documentation, quantitative / numerical reports and documents.

Stage 3: KM Infrastructure

The objective of this stage is to analyze how well knowledge is being used to achieve organizational goals. In this stage the organizational culture will be assessed to understand the position of the organization with regards to its KM status. Support tools involved are graphs, tables, diagrams and software knowledge maps.

Stage 4: Determination of KM situation

The objective of this stage is attempts to identify and locate all current knowledge assets, to analyze the knowledge flow pattern in the organization, to graphically represent the organization's knowledge and to determine the knowledge sources and knowledge acquiring methods used by employees by modelling the workflow, knowledge sources, communication flow, and knowledge network map to report the outcome or findings of the knowledge audit.

Stage 5: Analysis of KMA result

The objective of this stage is to provide recommendations derived from the outcome of the knowledge audit.

Stage 6: Use of analyzed data

The objective of this stage is reporting stand as a basis for further decisions on the knowledge management strategy and investment to be undertaken to provide recommendations derived from the outcome of the knowledge audit. Secondly design the action plan of new KM plan and implementation of new strategies based on the organizational strategic plan.

Stage 7: Continuous knowledge re auditing

The objective of this stage is to enable the rest of the core processes to be selected and analyzed to the performance of the knowledge management implementation would be also measured and analyzed in this stage.

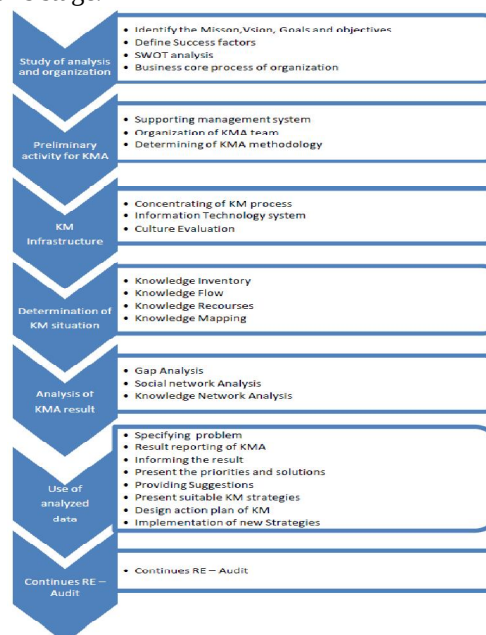


Figure 1. Comprehensive model of a knowledge management audit in 7 stage.

CONCLUSION

All 10 studies surveyed in this work confirmed that a KMA is necessary before determining and executing the KM strategies and programs of an organization. The KMA can be used as a tool to determine the SWOT to an organization and to assist the organization in improving its practices to best achieve its goals. Knowledge management audits can also be used to prepare a knowledge map and determine the knowledge flow in an organization following the KMA. It is impossible to prepare a knowledge map and determine the knowledge flow without performing a KMA. The findings obtained from a KMA have many uses. In general, KMAs are important to achieve the following goals: defining the opportunities and threats as well as the strengths and weaknesses of the organization for KM purposes, measuring cultures, Includes the construction of knowledge network analysis, which determines the knowledge sources and the knowledge acquiring methods used by employees, locating the knowledge resources, determining and analyzing the appropriate flow of knowledge, provides recommendations of the appropriate knowledge management strategy. Includes the development of KM tools and collaborative culture enhancing individuals' awareness regarding the sharing of their knowledge and enhancement of their relations with other organization members, preparing a knowledge map for the organization, creating absence of ownership in individuals with respect to the KM center, enhancing individuals' awareness regarding KM and its importance, providing an opportunity to improve individuals' training in various fields, presenting suggestions on the techniques, mechanisms and tools of KM, preparing a knowledge inventory, determining the key knowledge processes, defining the main factors and indexes for the evaluation of the KM implementation, encouraging individuals to think about the type of knowledge that they require, presenting KM strategies, analyzing the knowledge network and social network of knowledge, preventing duplicated tasks, designing acknowledge-based system and developing semantic Web sites, preparing the necessary platforms for the development of the KM center, guaranteeing the successful execution of KM programs, and using the KMA as a tool for internal and external benchmarking.

These points are often considered as the end products of auditing. In addition to these items, the following information is also acquired during the KM auditing process: the knowledge required to perform the task, the available knowledge, how to use the available knowledge, the experts in the organization, and the knowledge flow among individuals in the organization. It is necessary to perform KMAs regularly to successfully implement a KM program. This model (Figure 1) is comprehensive and attempts to present all of the necessary elements in management auditing. The model presented in this study is more

suitable for large organizations. If a KMA is performed based on the suggested model, then it is expected to achieve all of the benefits and objectives of performing KMAs. Most studies focus on the importance of conducting KMAs. They do not emphasize the failure of KM programs without performing KMAs

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