

Investigating Role of Knowledge Auditing in Profile of the Business Unit - Information Technology & Computer Center (ITCC) University of Anbar

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Abstract: Knowledge Audit (KA) is one of the important tools in management Information Systems, information technology, and Knowledge Management (KM). KA used in the check and evaluation process for knowledge resources in the organization. KA is a best method for monitoring knowledge management on quality milestones such as completeness, effectiveness and accuracy. In one way, a knowledge audit can reveal an organization's knowledge strengths, weaknesses, opportunities, threats and risks. In this paper, investigates KA framework, methodologies, and processes, techniques to bring a new dimension, the need to manage tacit knowledge by focusing on people and enhance their capability by improving communication, information transfer and collaboration. Therefore, any Business Unit including IT & computer centers, Must determine the needs of Knowledge Management before develop Knowledge Management system development.

Keywords: Knowledge Audit, Knowledge Management, Knowledge Inventory, IT & computer centers.

1. Introduction

Knowledge is defined as value-added and actionable information which allows forecasting and decision making. In the Information Age, knowledge has become the key to increasing productivity, enhancing innovation, and building competitive advantage. Knowledge Management (KM) plays a significant role in achieving organizational efficiency for its role in preserving corporate memory and thus ensuring organizational effectiveness. Knowledge Management initiatives back to their business objectives and goals. while the focus in information management is mostly on explicit knowledge, Knowledge Management brings a new dimension, the need to manage tacit knowledge by focusing on people and enhance their capability by improving communication, information transfer and collaboration [1][11].

KA is considered as a tool for monitoring knowledge management effectiveness. KA must determines important information interest what knowledge does the organization need it, lacks, who needs this knowledge and the using of the knowledge in which part. KM has many applications including organizations, industry, and education [9]. KA involves in the discovering, analyzing, measuring and evaluating an organization's knowledge asset. Its process consists of analyzing the current conditions and mechanisms of organizational knowledge, and reporting if any knowledge gap is identified. The gap will represent the differences of current knowledge needs in comparison to future ones. Many researchers mentioned that KA is important and has become one of success factors for effective KM implementation [2][3][4][5]. In this study, investigates KA framework, methodologies, and processes, to bring a new dimension, the need to manage tacit knowledge by focusing on people and enhance their capability by improving communication, information transfer and collaboration. Therefore, any Business Unit including IT & computer centers, Must determine the needs of Knowledge Management before develop Knowledge Management system development. Our paper attempt to Investigation the Role of Knowledge Auditing in Profile of the Business Unit: Information Technology and computer center (ITCC) University of Anbar as a Case Study. In the beginning, we have to identify the Business Unit – Information Technology and computer center (ITCC) University of Anbar as a technology center and show vision, mission, objectives, units of ITCC, Core Functions and services. ITCC is formed to help the students of University of Anbar in their study and to ensure optioning high quality learning. The center seeks to enhance and build a positive image of the university to provide reliable and secure.

The Vision and Mission of ITCC in general, to providing advanced technology environment.

Objectives of ITCC

- To provide reliable and secure information and communication technology resources.
- To create a scientific workshops.

- To improve the effectiveness and efficiency of the University processes through information and communication technology.

Units in ITCC

IT and Computer Center which is known as ITCC in University of Anbar is divided into several units are as follows:

Network Service & Computer Operation

The main function of this unit is to develop a high communication throughout; enhance the network in the university, Computer Operation services main function is to service and maintain and facilities related to computers.

Multimedia

The main function of this unit Multimedia technology will be emphasized in the teaching and learning process in the Ramadi Campus. The Multimedia Operation Unit is committed to ensure the best, fast services.

Development & Operation Systems

This unit is divided in to three parts:

1. Development of new applications for University of Anbar, Enhancement of existing applications developed internally.
2. Improve efficiency and effectiveness of University of Anbar processes, Design databases
3. Web and portal in this division the activities associated with the development of web sites, include the Internet and intranet. Developing information for the Web requires a focus on meeting user needs. The method involves six stages which are as follows:
 - **Planning:**
Define target audience, purpose, objectives, and policies for information development and use.
 - **Analysis:**
Check technical construction of web with validation tools; evaluate information consistency and verify correctness of domain information.
 - **Design:**
Separate information into page-sized chunks; connect pages along routes of use and user thinking; provide information, context, and navigation cues; create a consistent look and feel.
 - **Implementation:**
Create an extendible directory and file structure; use HTML tools where helpful; use templates for supporting consistent look and feel; check implementation in various browsers.
 - **Promotion:**
Target publicity releases for general Web audiences, potential users, and current users; follow online community norms and practices innovatively; connect with users to meet their needs.
 - **Innovation:**
Continuously and creatively work for improvement to meet user needs; use testing, evaluation, and focus groups to shift and change web content as user needs change.

Organizational Structure of System Development

System development has three functional units; Development, Application support and Web and Portal. For further details see figure 1 below.



Figure 1: Organizational Structure of system development

Core Functions

For deliver top quality IT, Multimedia and Printing services and products as follows:

- Provide services competently, punctually, faithfully, honestly and effectively in a polite and friendly manner.
- To provide the communication infrastructure of the Ramadi Campus.
- To perform servicing and maintenance services for personal computers.

Services

Many services ITCC provide such as Web Development, Hardware and Operation, Network and Security, System Administration, Development and Operation System and Multimedia Operation

2.1 Objectives of Knowledge Audit

“The importance of KA as the first step of knowledge management process and activity is its ability to picture accurate identification, qualification, measurement and assessment of both tacit and explicit knowledge of the organization, and knowledge networks inside the organization”[1][10]. Other advantages of KA are knowledge prioritization, and gap identification. The output of KA can also be used as a measurement tool for knowledge asset and also training need analysis [6]. KA provides a better understanding of knowledge creation process and KA is a tool for Knowledge transfer evaluation. The aim of the study can be achieved by accomplishing the following objectives[7][12]:

- 1- KA helps an organization to identify what knowledge is needed to support organization to success the goals and activities.
- 2- To provide how to use by the organization and who is the knowledge will be move around in it.
- 3- To provides a map show which the knowledge exists or not in the organization.
- 4- It provides an inventory of knowledge assets, allowing them to become more visible and therefore more measurable and accountable.
- 5- 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.
- 6- It helps in leveraging customer knowledge.

2.2 Components of Knowledge Audit

A Knowledge audit can have the following components which are not necessarily needs to be in order [8][9] (see figure 2 below);

Knowledge Need Analysis, Knowledge Inventory Analysis, Knowledge Flow Analysis, Knowledge Mapping



Figure 2: Components of a Knowledge Audit

2.2.1 Knowledge Needs Analysis

Any Business Unit including IT & Computer Center (ITCC). Must determine the needs of Knowledge Management before develop Knowledge Management system development. The Identification of Knowledge Needs for System Development Department. The major goal of this task is to identify precisely what knowledge the organization, its people and team possess currently and what knowledge they would require in the future in order to meet their objectives and goals [4]. Knowledge needs is one of the important part in knowledge management process. In order to understanding the way ITCC operates, this study interviewed senior manager of ITCC in university of Anbar and the manager of system development department as well.

Based on the interview, we have established these Knowledge needs which are required in System Development Department as follows:

- 1. Security:** ITCC system development Department needs to be updated with a latest and better secure antivirus available to keep the information system secure.
Symptoms: This department vulnerable for hacking which caused system failure many times.
- 2. Intranet service:** Improve intranet service by sharing every problem happens in any location of any department with other department to be a reference to overcome similar problems. This action can help in creating a creative environment (i.e. learning by sharing).
Symptoms: most of the problems that this department handles are repeatable problems and they caused by repetition of similar mistakes.
- 3. Accessibility:** Using different operating systems like windows 7, windows 8, XP, VISTA need a compatible application or the knowledge of enhancing current application.
Symptoms: Connecting user's PC to the system considered a problem for some users because it takes a long time and sometimes it's very difficult to even connect.
- 4. Skills Improvement:** Learning new programming languages like java, C# and to provide a new platform for users to be up to date and reliable. More so, by hiring new employees (i.e. experts knowledgeable about new programming languages) new Knowledge can be shared and other employees will be motivated to learn new programming languages.
Symptoms: In the system development department, they use only Visual-Basic.Net programming language. However, this language is considered as limited and it doesn't cover all the system needs (e.g. exception handling feature in Java). Moreover, the current developers-team uses the internet some times to get new codes which might be not efficient and unreliable.
- 5. Training:** Systematic and continuance training can ensure staff skills improvement and makes them able to satisfy system and end user's needs.
Symptoms: We found that they only do training once a year; year is a long time for an organization to be updated with the latest technologies.
- 6. Capture and Share Knowledge:** The developers-team needs to share and capture their knowledge to avoid knowledge lose.
Symptoms: we found that some employees are transformed to another place carrying their knowledge with them without any kind of facilities for capturing their knowledge. In such a way knowledge will be lost. After our investigation however, we found that they keep calling those employees for their advices.
- 7. Knowledge Resources:** The department needs e.g. libraries, manuals, and guide lines) for improving their performance.
Symptoms: They only depend on internet to get external information.

2.2.2 Knowledge Inventory

Why a company would want to implement knowledge management for its business? A company would experience the following benefits if it implements knowledge management in its business:

- By sharing knowledge, a company creates exponential benefits from the knowledge as people learn from it.
- KM can help build better sensitivity to brain drain.
- Companies can react instantly to new business opportunities.
- KM ensures successful partnering and core competencies with suppliers, vendors, customers, and other constituents.
- Shortens the learning curve.

The following figure shows this kind of strategy:

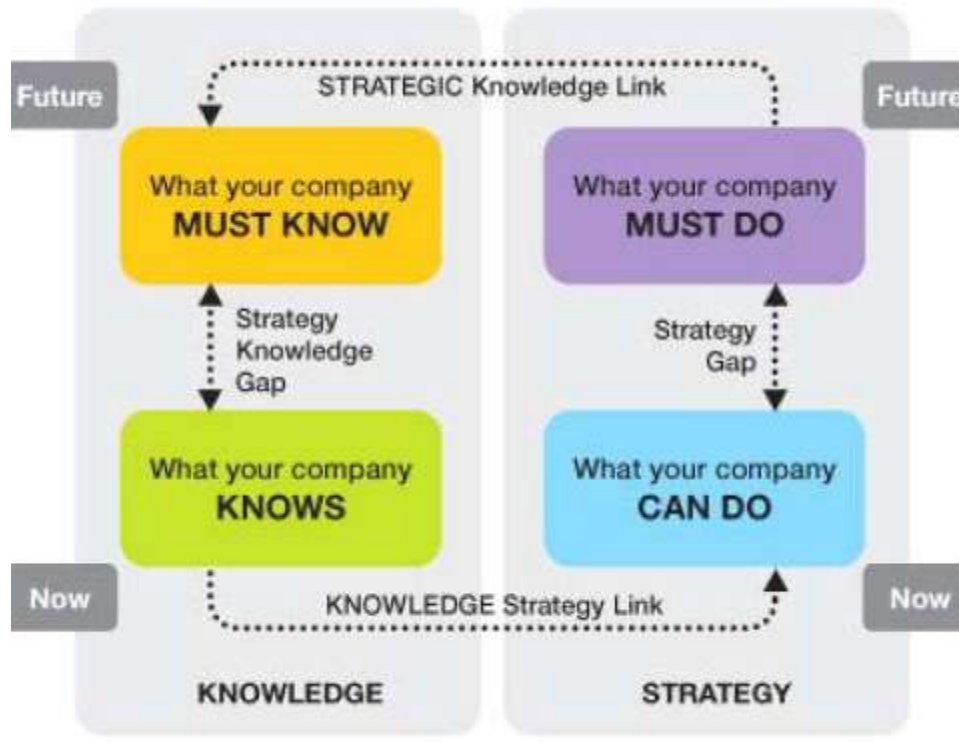


Figure 3: Shows kind of strategy

The output of our Knowledge Inventory will deliver the following benefits [5]:

- identification of core knowledge assets and flows - who creates, who uses
- identification of gaps in information and knowledge needed to manage the business effectively
- areas of information policy and ownership that need improving
- opportunities to reduce information handling costs
- opportunities to improve coordination and access to commonly needed information
- A clearer understanding of the contribution of knowledge to business results.

Our Knowledge Inventory does not attempt to develop a comprehensive inventory of knowledge assets, but works on the basis of developing a prioritized list of assets. These are identified by analyses of core business processes and critical management decision areas. A typical cycle includes:

- Analysis of key documents e.g. plans, process models and descriptions
- Analysis of current information systems
- Interviews with representative cross-section of staff
- Information requirements questionnaires

Knowledge inventory involves counting and categorizing **the explicit and tacit knowledge**.

Explicit Knowledge

In the beginning, we have to identify the numbers, types and categories of documents, databases, libraries, intranet websites, links and subscriptions to external resources, etc. First of all, with respect to the numbers and categories of documents, they are using Google for technical development. This department consists of ten employees and the manager of the department. Eight of them work in the development unit as developers, and one in the application support unit and the last one in the web and portal unit. Each one of them has a kind of tacit knowledge that will be explained later. Secondly, the Data bases are designed by Data Base Administration (DBA). It contains all the records about the staff and

students. In addition, a series of meetings among the developers team have been done to identify how to develop the required system. Developing the system is based on the following:

- 1- User requirements.
- 2- Analysis.
- 3- System updating.
- 4- Feedback provided by system users.

Thirdly, there is no particular library in the department. In case they need a book or any other recourse, they have to refer to the main library of the university. On the other hand, they use the internet to cover most of their resources. With respect to the internet website, as we mentioned above that they use the internet website to cover most of their recourses. Finally, regarding the links and subscription to external resources, there is no specific subscription to external links, they usually refer to Microsoft MSDN or Microsoft official website in order to be updated with the new technologies, and they refer to blogs in order to get knowledge about the programs coding.

We can categorize the knowledge locations into three categories as follows:

1. Documents and other resources such as Google, data base administration, and external resources such as Microsoft MSDN or Microsoft official website. These have been considered as explicit knowledge.
2. Knowledge stored in the developers' heads, this considered as tacit knowledge and it will be explained later.
3. They are making a yearly training, monthly meetings for discussing about the problems. They store knowledge in intra university of Anbar website.

The purposes of these resources are to know if the new technology has arrived, also they are important for those who want to develop their skills in the programming languages; the important thing is to know the new approaches to develop the system. On the other hand, they are most likely relevant and the developers get some points of them because they are reliable and up-to-date, and they actually being used by the developers every time they developing the system. These resources are helpful and organized and they are easy for people to find and access them based on the website.

Tacit Knowledge

In this section, we are going to explain the tacit knowledge in the system development department. This department consists from three units, the first one is the development unit, the second unit is the application support, and the last one is the web and portal unit. As we mentioned earlier, this department consists of ten employees and the manager of the department. Eight of them are working in the development unit as developers, and one in the application support unit and the last one in the web and portal unit as Web Master. Each one of them has a kind of tacit knowledge in his particular task. The eight developers are working in the development unit due to this unit has eight process.

- **Academic and Professional Qualifications**

With respect to the academic and professional qualification, three of the developers have bachelor in IT and two of them have bachelor of engineering. On the other hand, there is no professional qualification or certifications.

- **Core Knowledge and Experience**

They have concepts of Data Base Management System (DBMS), and knowledge on how to use Microsoft visual studio and also how to programming using VB.net

- **Job Training, Learning and Development**

They have some training courses, these courses are mostly on the programming languages and data base. However, developers make training once a year.

As outcomes of identifying explicit knowledge, we have drawn the figure of this process. The following figure shows the explicit knowledge outcome.

Explicit Knowledge	Purpose	Relevance			Quality			Usage
		1	2	3	H	M	L	
Google Resources	Updated Information	/			/			Developing programs and skills
data base administration	store information	/			/			Used during developing systems
Microsoft MSDN	provides resources		/				/	Learn new microsoft platform
Microsoft official website	get last versions and updating		/				/	Keep in touch to solve errors
University of Anbar Website	store knowledge	/			/			Recall information and use them

Relevance		
1	2	3

Quality		
H	M	L

1	Quite relevant
2	Relevant
3	Not really

H	High quality level
M	Medium quality level
L	Low quality level

Figure 4: Explicit Knowledge Table

3 Knowledge Audit Methodology

Some organizations are embarking on knowledge management programs without an understanding of why their knowledge assets are important. Rather than being in a position to make informed decisions about what knowledge they need to manage, they attempt to manage everything, whether it is significant or not [8]. After reviewing different knowledge audit methodologies or strategies to audit knowledge [9], we have found that they do not establish a clear strategy explaining a suitable place where the knowledge audit in an enterprise or area should be initiated to give an order to complete the audit, in other words, they attempt to audit everything, significant or not to the organization.

The methodologies analyzed need to be completed applied to detect problems/opportunities and then propose some improvements to the organization in relation to KM. Focusing on knowledge that exists in core processes ensure not only that those knowledge assets exist, but that it identifies those that are critical to an organization's success [13]. The KM strategy can then focus on the knowledge assets at their various levels of criticality, rather than managing everything regardless of its significance. Just as there is no universally accepted definition of a knowledge audit, there is also no universally accepted knowledge audit methodology because of the dramatically varying structures, natures and circumstances of the organizations in which they are conducted [14].

The seven-stage knowledge audit methodology proposed, as shown in the following figure, illustrates the knowledge audit process stage-by-stage highlighting those aspects of the process that are critical to its success and the issues that you may face that can impact on the value of outcomes.

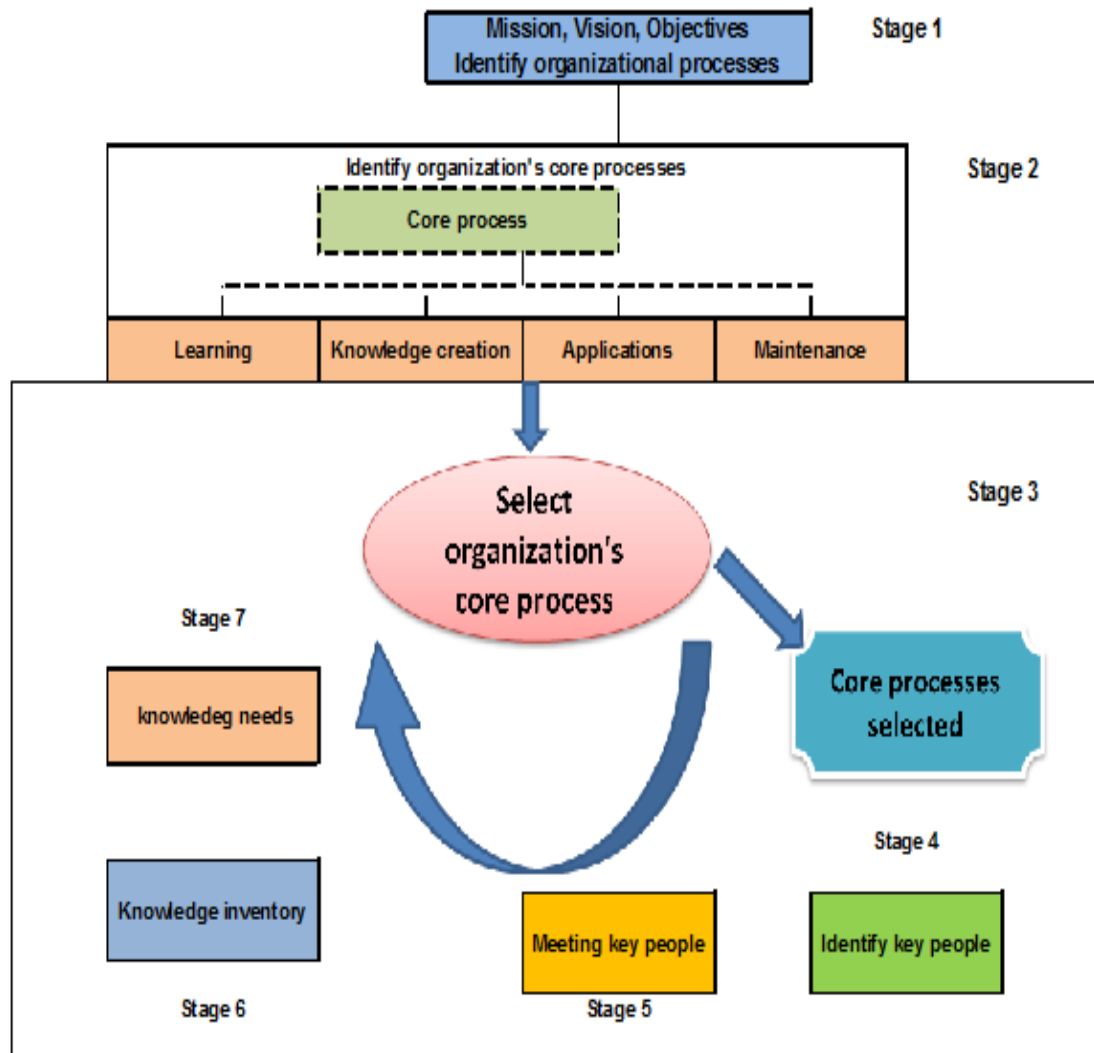


Figure 5: Knowledge Audit Methodology

4. Limitations of the Study

The proposed study has undertaken the business value proposition for adoption of KA. However, the paper is generic in nature and is not pointing to any specific scenario. Thus the scope of this study is limited in providing any in depth understanding of the various issues associated with any such transition. Based on this study, the business unit case of any specific profile can be made but with limited focus. This case while making an attempt to focus the decision makers has resorted to absolutely non-technical way of putting the subject matter for its audience. The study has developed few analytical frameworks e.g. for KA in business unit and for Knowledge Inventory, but the factors to develop the same are not exhaustive. The framework can be made more robust by incorporating study specific factors.

5. Conclusion

In this paper, endeavors to put forward a perspective to the adoption of Investigation the Role of Knowledge Auditing in Profile of the Business Unit – Information Technology and computer center (ITCC) University of Anbar as A Case Study, KA from the Profile of the Business Unit standpoint. This study is framed to focus the executive decision makers. The focus of this paper is on analysis the investment made on adoption of KA methodology & Knowledge Inventory. The analysis covers role of KA in the organizations both usage as well as Actor benefits. The same has been carried out based on analysis framework. This has been evaluated from the perspective of arriving at the impact of organizational change. As part of its analysis, in order to bring in objectivity, the study has proposed framework for cost benefit analysis. Based on the analysis carried out it has provided some recommendations which need to be considered in general while carrying out such transitions. The recommendations are broadly focusing on the need of modification of organizational outlook and need of carrying out a comprehensive cost benefit analysis. At the end, our paper has expressed its limitation in terms of being generic in nature. Though the framework that has been developed can be widely applied, it needs modification to take care of the project specific nuances.

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