

# Factors and Barriers affecting Knowledge Management System on the Organizational Performance in Mesfin Industrial Engineering of Ethiopia

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**Abstract** Knowledge is an organizational asset that enables the industry to develop rapidly and sustainable competitive advantage in real environments. The emphasis on knowledge in today's industry is based on the assumption that the transfer and replication of knowledge have a great role with strategic importance. In the current rising global economy, a knowledge management System has become a basic activity for any competitive advantage of organizations. Industries are accommodating integrated approaches to identify, manage, share and capitalize on the know-how, experience and intellectual capital of employees within their own organization. A wise management of the intellectual capital (knowledge asset) of an organization is one of the most important activities used to enhance organizational productivity. Although knowledge management system serves as critical enablers of business processes in industries, which is used as a bridge between industries performance and businesses. However, as the finding of the study has been shown that the status of knowledge management system in Ethiopian industry is low level and a little available with knowledge management systems. Currently, the knowledge sharing system is a lot of preferable in Ethiopia, however; it is influencing by different constraints such as lack of trust of technological advancements, and inadequate knowledge in the industries.

**Keywords** Knowledge Management, Knowledge Management System, Organizational Performance, Ethiopian Industry, Factors and Barriers

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## 1. Introduction

Today is the era of knowledge economy, in which most organizations possess knowledge that enables them to improve their productivity and performance. Many organizations are shifting toward knowledge driven

systems and are utilizing the knowledge management systems, processes and practices to enhance their competitiveness and effectiveness [1].

Knowledge is a deep-seated strategic resource for a firm to retain sustainable competitive advantage. It is a familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning. It is both authorized by and executed from people's practices and exists in a specific work context [2]. A knowledge management is a concept in which an organization gathers, organizes, shares, and analyzes the knowledge of individuals and groups across the organization in a ways that directly or indirectly affects organizational performance. According to [2] Knowledge management is the practice of selectively applying knowledge from previous experiences of decision making to current and future decision making activities with the express purpose of improving the organization's effectiveness. It is a multi-faceted discipline that aims at managing the knowledge assets of the organization, holistically combining behavioral and organizational theories. As knowledge is produced and diffused throughout an organization, it has the potential to contribute to the firm's value by enhancing its capability to respond to new and unusual situations when it is properly managed and supported by knowledge management systems. Therefore, knowledge Management System is one of the strongest knowledge management technologies that is designed to capture all the information within an organization and make it easily available to an employee, anywhere, anytime. It is distinctive sets of information systems that are created to facilitate the capture, storage, retrieval, sharing and reuse of knowledge [3]. Knowledge management system is a practice that creates a synergy of the information processing ability given by information technology with the inventive and imaginative competency of human and social elements in organizations.

In the current rising global economy a successful knowledge management has become a basic activity for any competitive advantage of organizations. Industries are accommodating integrated approaches to identify, manage, share and capitalize on the know-how, experience and intellectual capital of employees within their own organization. A wise management of the intellectual capital (knowledge asset) of an organization is one of the most important activities used to enhance organizational productivity [4]. [5] Goes as far as to argue that organizations should not even think in terms of knowledge management systems. He argues that knowledge management, though enhanced by technology, is not a technology discipline, and thinking in terms of knowledge management systems leads to expectations of silver bullet solutions. Instead, the focus should be determining the functionality of the information technology systems that are required for the specific activities and initiatives within the firm. The problem is that rarely are both these sets of knowledge known by a single person. Moreover, technology is rarely designed by the people who use it. Therefore, industries are faced with the issue of fit between information technology systems and organizational practices, as well as with acceptance within the organizational culture [4]. [4] Stresses the importance of understanding what knowledge management systems cannot do. They point to the fact that introducing knowledge sharing technologies does not mean that experts will share knowledge - other initiatives have to be in place. [6] Identifies several additional failure factors, including lack of top management support, organizational culture, lack of a separate budget, and resistance to change.

Therefore, this study is investigated that an asset for organizational knowledge by analyzing which and how knowledge management systems fit with the industries overall objectives. Hence, knowledge management system involves the application of information technology systems and other organizational resources to manage knowledge strategically, are a relatively recent phenomenon that is worthy of researching on today in the context of Ethiopian organizations. This work focuses on knowledge management system, specifically on the level of existence of knowledge management system that support and enhance knowledge management processes, and examines the organizational performance by assessing the existing knowledge management systems and the level it support the industries. In line with this study the following question has been answered within the scope of the study.

- a. What are the knowledge management systems available in the today's organizations?
- b. What is the status of the knowledge management systems in the Industries?
- c. What are the factors affecting knowledge management system in the Industries?

### 1.1. Objectives

- d. To identify the available knowledge management systems in today's organizations
- e. To investigate the status of the knowledge management systems in the Industries
- f. To explore the factors affecting knowledge management system in the Industries

## 2. Related Work

Nowadays industries are living in the world of expanding knowledge with more and more people being described as knowledge workers, and knowledge being widely accepted as the only true business asset. Global organizations have started using knowledge management technologies to amplify their competitiveness in ways that were impossible a few years ago [7]. For a successful start to knowledge management, an organization should engage in a clear understanding of how, and where, knowledge resides, and is developed, in the industry.

According to [8] in the twenty-first century, industries compete heavily due to the entrepreneurs attempt to use technology to develop their business. However, using technology generates high costs. So companies need to find a new way to survive by using the existing resources to gain maximum benefit. Knowledge management is one of interesting alternatives as it can deliver competitive advantage such as greater competencies and synergy, more balanced decisions and less errors, more creativity and innovation, broader collaboration and knowledge sharing, and easier links to expertise and deeper understanding. It deals with various aspects of knowledge management, particularly concentrating on knowledge management system in the industry. The findings show that to improve service and customer satisfaction, the industry has to find out and use knowledge management appropriately. Knowledge management helps reducing time to find information and sharing decision making.

### 2.1. Knowledge Management (KM)

In order to enhance industrial performance, knowledge management needs to be involved in the entire knowledge spectrum of the industries. It helps to increase industrial development at all levels, facilitate and promote its diffusion to individuals, groups, and/or across the entire industry, in accordance with the organization's requirements. Knowledge management manages organizational knowledge storage, retrieval capabilities, and create an environment conducive to learning and knowledge sharing. Similarly, it involves in tapping external sources of knowledge whenever these are necessary for the development of the industrial knowledge resources.

To a large degree, knowledge management is dependent on the understanding and management of industrial learning, memory, knowledge sharing, knowledge creation,

and industrial culture.

Knowledge may be available in individual mode bound basically to a person, knowledge management involves systematic designed to find, understand and utilize knowledge to achieve organizational objectives, but sometimes knowledge management creates value by reducing the expense time trial and error processes. [9] also had a comprehensive observation regarding to the different views in defining knowledge of information technology, strategic management, and organizational theory. The dominant hierarchical view of data, information, and knowledge which is particularly in information technology literature, they also described several perspectives of knowledge, including knowledge as a state of mind, an object, process, the condition of having access to information, or capability. They show this difference results view in different organizational knowledge management processes. Knowledge management broadly defined, from many perspectives, [10] viewed as a set of activities that lead an organization in acquiring knowledge both internally and externally. Knowledge management has gained increasing attention from diverse research disciplines [11]. This fact was seen in a number of research and their corresponding result and findings to focus on knowledge management supporting mechanisms and technologies. The borderless global economy has emphasized the importance of knowledge as the most critical source of competitive advantage. Thus, knowledge management has become a strategic mandate for most world-class organizations. A key enabler for implementing an effective knowledge management system has advanced information technology.

## 2.2. Knowledge Management System (KMS)

Rapid changes in the area of knowledge management have, to a great extent resulted from the dramatic progress that witnessed in the information technologies. Information technology facilitates sharing as well as accelerated growth of knowledge and allows the movement of information at increasing speeds and efficiencies. Computers capture data from measurements of human being phenomena, and then quickly manipulate the data to better understand the phenomena it represents. Increased computer power at lower prices enables the measurement of increasingly complex processes, which we couldn't only imagine before. According to [12] today's knowledge is accumulating at an ever-increasing rate. It is estimated that knowledge is currently doubling every 18 months and, of course, the pace is increasing. Technology facilitates the speed at which knowledge and ideas propagate. As knowledge is often the basis for the effective use of industry resources, a new line of IT-based systems to support industrial knowledge management has emerged called knowledge management systems. This knowledge management system has a line of systems which target professional and managerial activities by focusing on generating, collecting,

arranging and disseminating an organization's knowledge as opposed to information or data. The development of knowledge management system demands that knowledge be obtained, produced, shared, regulated and leveraged by a steady conglomeration of individuals, processes and information technology, but still to be an effective knowledge management system should fit the overall organizational culture and structure. The first and early adopters of knowledge management systems have been large consulting companies; today, such systems are used in a variety of areas such as medicine, engineering, product design and construction [13].

Knowledge management system is the integration of technologies and mechanisms that are developed to support the knowledge management processes and utilize a variety of knowledge management mechanisms and technologies to support the knowledge management processes. Each knowledge management system utilizes a combination of multiple mechanisms and multiple technologies. Likewise, the same knowledge management mechanism or technology could, under differing circumstances, support multiple knowledge management systems [14].

## 2.3. Factors and Barriers Affecting Knowledge Management in Industry

According [15] industrial culture constitutes of the accumulation and combination of common expectation, tacit knowledge, share experiences and social norms that shape the attitude and behavior. Successful organizations empower employees to want to share and contribute intellectual information, by rewarding them for such actions [11].

[16] argued that knowledge building is dependent upon information technology. In order to build knowledge sharing capabilities, the organization must develop a comprehensive infrastructure that facilitates the various types of knowledge and communication [17].

[18] articulated that the structure of the industry, impacts the ways in which industries conduct their operations and in doing so, affects how knowledge is created and shared amongst employees. The hierarchical structure of an organization affects the people with whom individuals frequently interact, and to or from whom they are consequently likely to transfer knowledge [19] articulated that people are the heart of creating organizational knowledge as it is people who create and shared knowledge. People are said to be true agents in the industry where all tangible and intangible assets are the result of human action and depend ultimately on people for their continued existence [20].

Various researchers found that organizational culture, peoples' resistance to change, organizational structure and top management in the organization are the factors that affect implementation of knowledge management system. This study supports the idea provided by the early researchers; however, the priority setting for each factor

and the degree to which the factor can influence the organization was different. In the meantime that, this study was done in the case of a developing country in the Ethiopian context. And various studies simply has assessed the different factors for the implementation of knowledge management; but, the present research is all about what were the factors for the implementation of knowledge management systems rather than knowledge management itself [21].

### 3. Method and Materials

The research design applied in this study is a cross sectional survey research method because the cross sectional survey analyzes one time distributed data, unlike a longitudinal survey which depends on a series of data's to be collected.

### 4. Results and Discussion

Based on the results and findings of the study; the availability of knowledge in the industry, the status of knowledge management system and factors & barriers affecting knowledge management system in developing countries was mentioned in this section.

#### 4.1. Demographic Information

Today industries in developing country like Ethiopia looking for a change which focus on knowledge and knowledge management Systems. This knowledge has come to the organization through human experience, knowledge shared between staffs and technologies. Therefore, the role of directors, managers and senior managers is great as it shown in below figure.

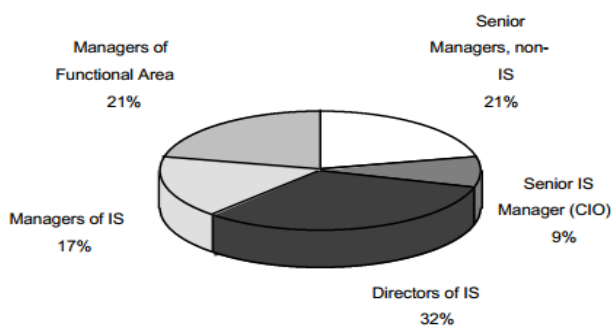


Figure 1. Demographic Information

In terms of the technology-based perspective, the managers associated knowledge management with various other systems (including data warehousing, enterprise wide systems, executive information systems, expert systems, and the intranet), as well as various tools (e.g., search engines, multi-media, and decision making tools). Lastly, from the view of the culture-based perspective of knowledge management, managers associated knowledge management with learning (primarily from an

organizational perspective), communication, and intellectual property cultivation. Some suggested that the information/technology component of knowledge management was only 20% of the concept, whereas the cultural and managerial aspects accounted for the bulk of the issue. However, the responses were nebulous in terms of specific cultural implications, perhaps indicating a root concern absent concrete ideas on how to address it [22].

#### 4.2. The Availability of Knowledge Industry

As the below figure 2 shows that more or less new knowledge management system technologies are tried to apply in Ethiopian industry. However, at this stage it is very poor and insufficient to make industry competitive at the world level.

Table 1. Percent of Knowledge Management System with Various Technologies/Tools

List of Knowledge Management Systems	Result
Browser	90%
Electronic mail	85%
Search /Retrieval tools	84%
Information repositories	82%
WWW server	42%
Agents/Filters	36%
External server services	31%
Videoconferencing	13%

#### 4.3. Knowledge Management System in Industrial

As a result argued that the organizations like industry in this case currently support the use of knowledge management systems. However, the level of usage between developed and developing country was various. As this study shown that the way of knowledge transferred between human to human, organization to organization still traditional which is focused on employee experience. This brings the challenge for organizations when the employees are left with their knowledge; hence the knowledge is kept in employee mind in developing countries. However, as technologies become familiar the organization obtains a new knowledge from external sources such as through, subscription journals & expert networks, websites and portals. The organization supports the exchange of data, information and knowledge within the organizations' units [23]. Most of the organization uses the internet to share, apply, acquire and discover knowledge between different organizations to become competitive. As these organizations become visible to world markets, knowledge sharing systems and organizational learning are valued in my company's culture [24].

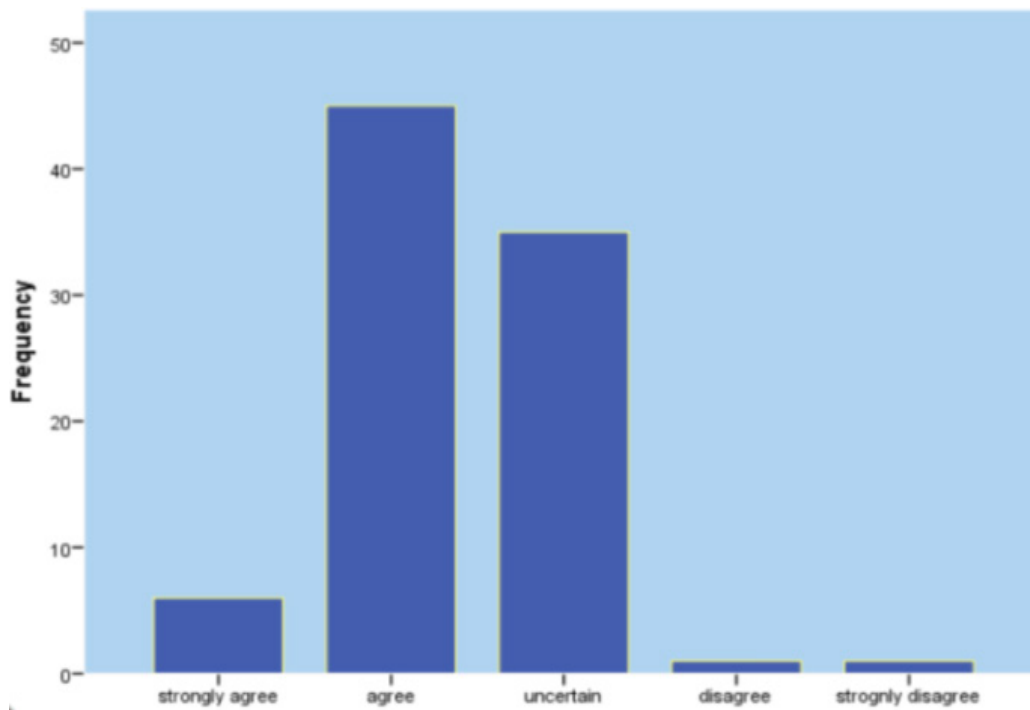


Figure 1. Knowledge Management System in Industry

**4.4. Status of the Knowledge Management Systems in the Industries**

The current situation of Knowledge management system practiced in industrial engineering has been investigated in this study as one of the main motto of this research study. This idea is used to assess the current utilization of Knowledge Management systems in the organization. In order to achieve this objective the researcher developed a question and there after extended the question in a manner that the research questions are truly answered by the list of questionnaires in the following discussion.

As the study stated that the status of the knowledge management system in Ethiopia still very low level. The revealed data shows that the storage of knowledge in developing country like Ethiopia is in the human mind (Tacit knowledge) which is not coded on documents. This brought the development of industry to backward always as a number of managers, senior managers, and directors changed from time to time. However, knowledge management system is highly applicable, such as the use of simulation technology before an actual object/product is designed than the human mind and frequently used in productivity improvement and cost savings. Since, all activities in the organizations are not highly dependent on knowledge management system, due to this mandatorily require a knowledge management system in the organizations [25].

**4.5. Factors affecting Knowledge Management System in the Industries**

The turnover rate is a problem in many organizations due to the accidental outgoing of highly experienced staffs unexpectedly, but with a proper investigation of knowledge management systems the negative impacts that arise from high turnover rate can be minimized. Since knowledge management systems are specific types of technologies intended to preserve, share, capture, and apply knowledge, turnover rate cannot harm the organization to a great extent with the existence good awareness in knowledge management systems. With a reduced turnover rate and enhanced knowledge management system, it is possible to compare how organizational performance is related to knowledge management system.

While this research intends to enhance organizational performance by suggesting appropriate Knowledge Management Systems, how different knowledge management systems affect organizational performance is not well understood [26].

[27] In the analysis and design of knowledge management system in Product Development stated that; the economic success of a manufacturing company depends on the success of its products. However to produce successful products evidently is not easy. The Study show that between 30 to 50 percent of the new products launched to the market is failing. One of the reasons is the inability to manage the knowledge and translate it into successful new products. The production plays a role in designing and running the production system to provide and distribute the products. Therefore, they conclude knowledge management system is needed to manage knowledge in the product development process. It is used to capture the

created knowledge, to save the captured knowledge and to distribute them to all related functions. Information technology, then can be used to capture, store and distribute process [28, 29].

As the data revealed that there are many factors to be obstacle on industries to use, share, and transfer knowledge among employees of the organizations in Ethiopia [30]. The major factors and barriers affect the industry are poor leadership attention to support knowledge management system, lack of trust of technological advancements, lack of well organized ICT infrastructures, inadequate knowledge of the employees towards to technologies, and lack of Personal motivation to use knowledge management system in the industry [31].

## 5. Conclusions

The borderless global economy has emphasized the importance of knowledge as the most critical source of competitive advantage. Thus, knowledge management has become a strategic mandate for most world-class organizations. Knowledge management involves people, processes and technology with the ultimate goal of sharing information and knowledge throughout organizations, communities-of-practice, Social networks and group interactions in general. Its analysis of existing knowledge as a resource, as well as defining the objectives regarding the generation, protection and application of new knowledge, then transfer, exchange and dissemination of knowledge, effective use of knowledge and performance measurement.

The significant direct linkage between Knowledge Management System usage and organizational performance suggests the existence needed to identify additional contingencies to deepen the understanding of Knowledge Management System achievements. Knowledge management system accurately increases the industry's profitability, exactly identifying factors of knowledge management system and identifying the source of progression of the organization in terms of knowledge utilization.

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