



## Research Article

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# Knowledge Management as a Strategy for Attaining Quality in the Selected Petroleum Industries in the Middle East and North African (MENA) Region

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## Abstract

*As the world of business and industry advances toward interdisciplinary in the management of information and the utilization of the output of research and development, there is an increasing recognition of the importance of coordination in the promotion of quality in modern firms. The necessity of coordination has been brought about by the entry of massive data and information that have been generated by the various units of many business and industrial corporations. This study aimed to determine the extent to which knowledge management was used as a means toward the attainment of quality and the effects of knowledge management on the quality assurance views of a selected industrial petroleum industries in the Middle East and North African (MENA) Region in order to propose recommendations for enhancement. The researchers based this study on the theory advanced by Koenig (2012) who defined knowledge management as a discipline which promotes and integrated approach to the identification, retention, evaluation, retrieval, and sharing of all of the information assets of an enterprise. This research used assets such as data bases, documents, policies, procedures, and previous expertise and experiences of individual workers. The descriptive-survey method through the use of questionnaire as the instrument of data collection was used in this study. The descriptive study was used because the researchers intended to conduct a study of the actual situation in connection with knowledge management in the promotion of quality of operations in an industrial corporation. The extent to which knowledge management is used as a tool toward the attainment of quality in the selected industrial corporations in the MENA Region is of interest to the researchers. For this reason, this study was conducted.*

**Keywords:** Knowledge Management, Quality Assurance, Petroleum Companies, MENA Region

## 1. Introduction

Over-emphasis on the generation of information has led to the excessive use of technology to the point of undermining the value of human resources in many organizations. The knowledge that was possessed by many people in various organizations remained unused because there were no avenues toward which these intellectual possessions could be channeled into the promotion of corporate functionality.

Consequently, toward the close of the twentieth century, recognition of the importance of knowledge and knowledge management took place. The heads of business and industrial corporations began to realize that it is not enough to place the future advantage solely in the hands of technocrats. To do so would be to neglect an asset that could bring competitive advantage to the organization. There was a realization of the fact that knowledge is not stored only in documents, facilities, and systems. Knowledge is present in ideas, judgments, talents, relationships, perspectives and concepts. For this reason, knowledge should be shared and used. In addition, the full utilization of knowledge can be strengthened by the discovery of the potentials of the human resources of the organization and the full usage of their skills, competencies, ideas, commitment, motivation, and planning capabilities. Only then can a business and industrial corporation prepare for the acquisition of a competitive advantage over other organizations offering the same products and services.

### 1.1 Statement of the Problem

This study aimed to determine the extent to which knowledge management was used as a means toward the attainment of quality and the effects of knowledge management on the quality assurance views of a selected petroleum industrial corporation in the selected countries in the MENA region in order to propose recommendations for enhancement.

### 1.2 Objectives

The following sub-problems comprised the guidelines for conducting this study:

1. To what extent does the selected petroleum industry use the following dimensions of knowledge management to attain quality:
  - Organizational culture;
  - Organizational processes;
  - Management and leadership;
  - Technology; and
  - Organizational politics?
2. Are there significant differences between the views of the employees of the company and those of the clients regarding the extent to which the petroleum companies under study uses knowledge management to attain quality?
3. What are the effects of knowledge management on the quality assurance views of the selected petroleum industries, such as:
  - Quality as reliability;
  - Quality as excellence;
  - Quality as fitness of purpose; and
  - Quality as conformance to specifications?
4. Based on the findings of the study, what proposals for enhancement may be recommended to the selected petroleum industries study?

### 1.3 Null Hypothesis

The following null hypothesis is advanced for testing at the 0.05 significance level;

No significant difference/s between the views of the employees and those of the clients regarding the extent to which the company uses knowledge management for the attainment of quality.

#### 1.4 Conceptual Framework

Knowledge management is associated with corporate strategy, especially in the aspect of attaining quality of products and services in many organizations in the twenty-first century. As a corporate strategy, knowledge management is useful in the improvement of industrial firms' competencies to meet their goals and objectives, particularly in the dimensions of organizational culture, organizational processes, management, technology, and organizational politics (Frost, 2013).

As a means toward the attainment of quality, knowledge management has favorable effects on an organization's views of quality assurance systems. These views include quality as reliability, quality as excellence, quality as fitness of purpose, and quality as conformance to specifications (Morrison, 2004). Taking into consideration the dimensions of knowledge management and their effects on the organization's views of quality assurance, this research will utilize the results of the study to formulate recommendations for the enhancement of knowledge management in two selected petroleum industries in the MENA region.

Figure 1 presents the conceptual framework of the study.

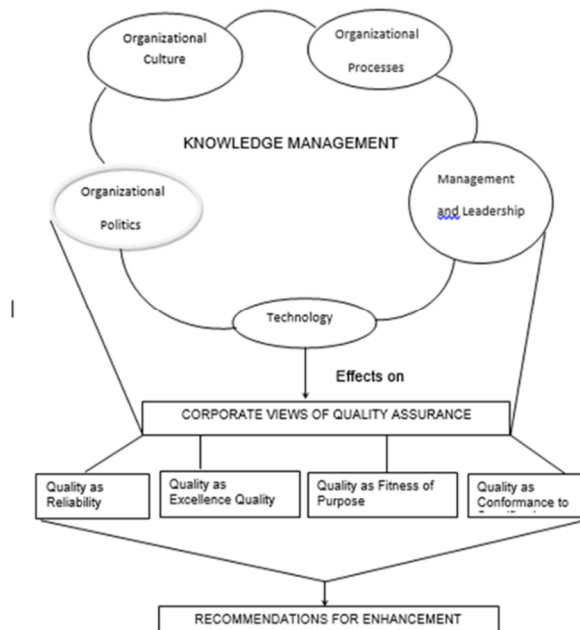


Figure 1: Conceptual framework of the study

#### 1.5 Theoretical Framework

This study was based on the theory advanced by Koenig (2012) who defined knowledge management as a discipline which promotes and integrated approach to the identification, retention, evaluation, retrieval, and sharing of all of the information assets of an enterprise. Examples of these includes, but

not limited to, documents, organizational policies & procedures, as well as previous experience and expertise of employees which have not been used before. Knowledge management comprises a range of strategies and practices for identifying, creating, representing, distributing, and promoting experiences and employees views in the organization. Insights and experiences may include knowledge either possessed by every employee or ingrained in organizations with respect to the organizational practices & processes. (Nonaka and Von Krogh, 2009). Recently, fields such as media information, computer management, as well as public health and policy have begun its contributions in research on the area of knowledge management (Bellinger, 2013).

There are a lot of big business organizations and organizations which are not for profits allocate their organizational resources for internal efforts to implement knowledge management. Normally the allocation is intended to improve their business strategies, expand the use of information and technology, or other key organizational business departments (Aldicott, et.al. 2006). Efforts on knowledge management are usually concentrated on organizational objectives so as to increase the sharing of lessons learned, organizational performance, competitiveness and innovation of the organization (Gupta et.al. 2004). Efforts which are focused on knowledge management overlap with organizational learning, and may differ in the sense that knowledge management is distinguished by a greater focus on the recognition of knowledge as a strategic asset which has to be shared (Maier, 2007).

Furthermore, the efforts on knowledge management have started during the early part of the twentieth century and had its applications business discussions and forums, apprenticeship, corporate libraries as well as personnel trainings and mentoring and coaching programs (Sanchez, 1996). Given the growing usage of computers in the twentieth century, more focused need for technologies have been introduced to increase organizational efforts on knowledge management. (Sanchez, 1996).

The term “*personal knowledge management*”, which means management of knowledge of individuals was introduced on the year 1999 (Wright, 2005). Knowledge management programs can result in impressive benefits for organizations and individuals.

With the presence of Web 2.0 nowadays, the idea of knowledge management has drastically changed towards people participation and some focus on its emergence (McAfee, 2006). The concept is also known as Enterprise 2.0 which has been controversial, since there are debates as to whether or not it is only a fad that does not contribute to the future of knowledge management.

Knowledge management has a number of dimensions. Frost (2013) identifies these dimensions as the following: (1) Knowledge management as a strategy, which should rely on business or corporate strategies. The primary goal is to manage, disseminate, and make knowledge assets which will be relevant to business and in effect, it will support in meeting tactical and strategic needs; (2) The organizational culture, which affects employee’s manner of interaction, the context within which knowledge is created, the resistance which people in the organization show toward specific improvements, and the manner in which they share or don’t share knowledge; (3) Organizational processes or the correct methods, environment that facilitate the implementation of knowledge management in the organization; (4) Management and leadership, which are required in knowledge management for promoting competence in all levels; (5) Technology, which includes properly designed and implemented systems, tools, and methods of service delivery that fit the requirements of the organization; and (6) Organizational politics, or support on long-term which can lead to the implementation and sustenance of organizational activities on all functions of the organization, which can incur expenses in terms of time and money and which may often yield a visible return on investment.(Frost, 2013).

Knowledge management is intended to promote quality in an organization. Quality can be defined in many ways, depending on the agenda that it wishes to meet. Quality is so multifaceted that it cannot be reduced to a single definition. Contrasting views of quality can be reconciled into such notions as quality as reliability, quality as excellence, quality as fitness for purpose, and quality as conformance to specifications (Morrison, 2004).

High reliability organizations engage in high-risk operations that cannot be allowed to fail. Thus, quality as reliability involves investments in pre and post-preliminary trainings, the need to develop continuously, a clear identification of core tasks and purpose/s in response to the agreement the need that might be addressed (Bierly and Spender, 2002). A high-reliability organization conducts open discussion on courses of action to be taken in order to ensure consistency. Resources and technology are well-kept and updated. Information is centrally held and there is clear leadership from senior management.

Quality as excellence is associated with cost and effectiveness (Morrison, 2004). An excellent organization has several elements. These elements include clear vision, effective leadership, SMART organizational goals, good operational standards; the adaptation of continual improvement and innovation. In addition, quality can also include organizational involvement and focus on commitment, people's participation, empowerment of employees; customers need identification, teamwork; management information systems use in monitoring and measuring organizational activities and results, and the development of organizational creativity. (Kanter, 1999).

Quality as fitness for purpose focuses on the operations, processes, or procedures that lead to the achievement of the goals of the organization. The company's purposes are heavily conditioned by the customers' requirements. Faulty purposes will not guarantee a high quality outcome. A strategy for achieving fitness for purpose includes the evaluation of existing practices, the consideration and evaluation of alternatives, and the adoption of a piecemeal, incremental and carefully tested approach to industrial operations (Morrison, 2004).

Quality as conformance to specifications requires the detailed specification of the operating standards, not simply on the production line, but also on other aspects of the organization, such as health and safety, and personnel matters. Crosby (2001) views quality as the predominance of "zero defects" and error prevention. The practice of "zero defects" is viewed as the rejection of the notion of "acceptable quality levels" (AQL). The "zero defects" movement implies total control and replicability of products, materials, and processes. For this purpose, the elements of production have to be specified in concrete, specific, and operational terms so that they can be measured, evaluated, reviewed, and monitored. The criteria for ensuring that conformance is addressed should be made explicit. Performance indicators are established in order to give evidence of the achievement of the goals of the organization. Decisions will need to be taken on what constitutes non-conformance, the limits of conformance, and acceptable conformance (Morrison, 2004).

Crosby (2001) emphasized that quality is conformity to requirements, not excellence or elegance that problems must be identified by the individuals or departments that are causing them; prevention rather than cure is the key to quality. He added that it is cheaper to do things right the first time. Furthermore, he declared that the only worthwhile performance measurement is the total cost of quality and the price of non-conformance and that the only worthwhile quality performance standard is that of zero defects.

### *1.6 Contribution of the Study to Knowledge and Practical Applications*

This study renders a contribution to knowledge by clarifying the ways in which data on organizational culture, organizational processes, management and leadership, technology, and organizational politics can be used for introducing innovations in the organization and promoting product development. Furthermore, the study emphasizes the importance and the ways in which the intangible assets, namely, the knowledge that has been accumulated by the manpower of the company are instrumental in the company's survival and the sustainability of its competitive advantage. In addition, this study illustrates the way in which the company uses its employees' knowledge to save on the cost of operations through the utilization of the knowledge of its employees on the ways to shorten production time, infuse quality into products and services, and collect data that can be used for decision-making regarding production and the use of marketing strategies.

Practical applications of knowledge management can be cited here. In a company where there

are several experienced and efficient employees, it is easy to collect data on the various experiences and best practices that the employees have done. Through its research and development division, the company can consolidate data on the various strategies used by the employees in the past to shorten production time, manage a large and diversified manpower, and use quality control measures through the integration of various strategies to attain quality from the employees with varied assignment. The information and ideas derived from the employees can be used by the company to transform its products and services in order to meet the needs of the market. Moreover, the inputs given by the employees can be consolidated for the creation of new knowledge that can transform the company into an entity that is capable of fulfilling the needs of a global society.

## 2. Literature Review

For the purpose of being able to determine the range of interest that theorists and researchers have with regard to knowledge management, the researcher conduct a review of related literature and studies. The expositions of various authors of knowledge management literature and the findings of researchers on knowledge management are presented.

Knowledge management originated with consulting firms that availed of the opportunity to exchange information with a number of organizations for the purpose of sharing the information with other organizations for financial remuneration. Knowledge management encourage a business approach to identify, capture, evaluate, retrieve, and share the information assets of the business organization. (Koenig, 2012). As an organizational strategy, knowledge management is a daily business process that involves the transfer of relevant information across the different levels and structures of the organization in order to facilitate and expedite decision-making (Antonic, 2005). A systematic process of knowledge management in an organization results in the fulfilment of the goals of the organization by all units and departments. Knowledge management leads to the creation of new knowledge and helps the management to make forecasts of the future. Knowledge management involves the analysis of existing knowledge, the definition of objectives regarding the generation, preservation, and utilization of new knowledge, the transfer of new knowledge, and the effective use of knowledge for continuous improvement of organizational processes (Antonic, 2005).

Knowledge can be acquired from external and internal sources. The external sources of knowledge include purchased technology and software, experts, consultants, and strategic partners. Internal sources are derived from individual learning and the process of what Senge (2005) the "learning organization." Education and training on knowledge management are provided by the organization's research and development unit (Krstic, 2007).

Knowledge management offers various benefits to a business organization. First, knowledge management supports innovation and encourages the flow of ideas among the employees of the business organization. Second, knowledge management increases revenues because manufacturing of commodities and delivery of products and services are faster. Third, knowledge management reduces the cost of operations because it eliminates unnecessary production and redundant transaction costs. Fourth, knowledge management raises the level of morale of the employees because their knowledge is utilized for the improvement of the business organization and because they are rewarded for the knowledge that they have shared with the organization. Fourth, knowledge management increases the organization's competitive advantage because of its efficiency and effectiveness in the direction and control of operations (Tisen et al, 2006).

Knowledge management is resource-based. The internal resources of the organization are the sources of competitive advantage. However, knowledge management is a complex process. For this reason, Booker, L. et al (2008) suggested that "any given control mechanism has the capacity to affect both the nature and flow of knowledge in a firm by the manner in which it processes particular attributes of knowledge". In addition, knowledge management is shaped by organizational structure and organizational climate (Chen and Huang, 2007). In this regard, previous research has shown that the organizational structure, relationships of its members, and strategies that influence the nature of

knowledge management. (Morey, D. et al. 2002)

Competent knowledge management can generate new opportunities for the organization. It can create value for the customers and obtains for the organization, competitive advantage or the improvement of performance (Lloria, 2008). Knowledge management activities include the creation of knowledge, documentation, retrieval and reuse, and the integration of knowledge in the operational and business processes of the organization (Dayan and Evans, 2006). Knowledge management implementation in the organization includes the systematic organization, planning, scheduling, and monitoring of work processes, and the deployment of people, processes, technology and environment.

Knowledge management has been found to be enabled by organizational culture, contextualized space, leadership, organizational control, and work style (Bray, D. 2013) It is necessary to present an exposition of the enablers of knowledge management for the sake of clarification.

The first factor, organizational culture is a system of shared meaning in the context of the vision-mission of the organization and distinguishes one organization from another (Schein, 2004). Organizational culture enables the members of the organization to deeply absorb the definition of knowledge which is being shared to all the members. It also provides as a clarification device and control measures that help in shaping the behaviors and attitudes of the organizational members. (Robbins, 2003) Culture of the organization determines the manner in which organization members interact with one another. Thus, in an organization with an open culture, the sharing of knowledge is facilitated because discussion and exchange of ideas are encouraged.

The second enabler of knowledge management is contextualized space, which may be mental, physical, or virtual. Kolb and Kolb (2005) declare that based on the field theory of Kurt Lewin specifically talk about people and its environment are relational variables, and behavior is a factor in both aspects. An individual's role in a specific learning space which can define the kind of personal experience has undergone. An individual's respond to the demands on him cannot be described in physical terms, but in the way in which it exists for him at the time.. Thus, in knowledge management, opportunities for sharing can be done through scheduled meetings, institutionalized work forums, and casual communication situations.

The third enabling factor is leadership, which Maier, R. (2007) defines as "the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives." Thus, in knowledge management, leadership is important because of the influence of leadership on the motivation of the employees. Organization members create and share knowledge through the motivation of their leaders and the way in which the leader handles the dynamics of knowledge creation and management.

The fourth enabling factor of knowledge management is organizational control, which comprises the establishment of objectives, the redirection of unproductive behavior, and the provision for guidance on the ways to create and share knowledge. Lemon and Sahota (2004) emphasized the importance of having clearly established objectives both at the individual and corporate level. They believed that clear objectives provides guidelines on the nature and scope of knowledge that should be shared and the ways in which they contribute to the fulfilment of organizational goals, under normal circumstances. When the environment is turbulent, clearly established objectives and roles provide a sense of direction toward the recovery of knowledge and lost skills.

The fifth and last enabler of knowledge management is work style, which is the description of the organization members' propensity for working with predetermined goals and taking into account their relationships with other members in the work situation. Schein (2004) asserted that work style is related to organizational culture. He expounded that the nature of knowledge management depends on whether the culture is communitarian and cooperative or competitive and individualistic. He emphasized that knowledge sharing is facilitated in a culture that is communitarian and cooperative.

## 2.1 Related Studies

In the conduct of this study, the researchers engaged in a quest for studies related to this research. Shahnawaz (2006) conducted a study on the antecedents of knowledge management practices supported by information technology. Shahnawaz investigated the different reasons that affect how employee manage their knowledge and behaviors influenced the results with which commonly connected to the management of knowledge. The research focused on how the organization, in the area of IT can support the knowledge at work because presently, it is integrated with diverse information technologies.

The results of the analysis suggested that cognitive effort, available information technology support, and employee empowerment can significantly affect the member's practices on knowledge management.

Liu (2003) made an assessment of the value that a knowledge system could contribute to individual learning in an organizational setting by making an analysis facilitating the knowledge management use in management systems and its value on individual understanding and learning. This thesis defined the meaning of organizational learning and explained how it could be measured by using assessment of perceived change of each member of the organization both internal status or observable and recognizable facts or behavior.

The research demonstrated that like other information systems, users are the most important aspect of a knowledge system. The organization should emphasize people over technology when managing a knowledge system because the people exercise their individual choice to use the system, to share with others, or to hoard knowledge.

Anderson (2009) conducted a study of the organizational capabilities as predictors of effective knowledge management. The study was able to determine the relationships between aspects such as the capabilities in the area of infrastructure, knowledge process, and effectiveness of the organization from two sided perspective of the business units in connection to the other business units. This research collected data from Fortune 100 multinational firms and they evaluated them with the use of Structural Equation Model. These models were created to test and hypothesized relationships.

Wang (2005) conducted an examination of the determinants sharing knowledge via knowledge management systems. The research drew on the theories such as accountability, social exchange, as well as Five-factor Model of Personality to determine the contextual factors such as evaluation plus reward, evaluation, benefits which are perceived, and characteristics of individual personality and the intention to share actual knowledge through a knowledge management system.

The findings supported the hypothesis that work-related benefits also investigated to have a good effect on both knowledge sharing and actual sharing intentions. Characteristics on personality were found to be related with the conditions in which knowledge was shared.

The literature which have been reviewed has provided this researcher with a thorough grasp of the importance of knowledge creation and the mechanisms of knowledge management. The related studies are similar to this research in the sense that they were concerned with the mechanisms of knowledge management in relation to employee behavior.

This study was concerned with determining the ways in which knowledge management can promote the attainment of quality in a business corporation in order to gain competitive advantage in business. For this reason, this study does not duplicate any of the researches which have been reviewed by this researchers.

## 3. Methodology

The descriptive-survey method of research was used in this study. The questionnaire was used as the instrument of data collection. The descriptive study was used because the researcher intended to conduct a study of the actual situation in connection with knowledge management in the promotion of quality of operations in an industrial corporation.



### 3.1 Research Environment

This study was conducted in the following leading petroleum companies in the MENA region namely; Bahrain Petroleum Company (BAPCO), Arabian-American Oil Company (ARAMCO), Petroleum Development of Oman (PDO), Sudan Petroleum Company Limited (SUDAPET). These companies are owned and managed by the different Ministries of Oil, Mining, and Energy under the Laws of these regions. These companies controls between five percent to 34-50 percent of every oil producing blocks in their respective countries.

As a providers of oil field services to the oil and gas industry, these major petroleum companies offers training, project management, and operations and maintenance services for the different petroleum industry in the MENA region. These companies engages in oil and gas procurement and construction and commissioning services and also undertakes geophysical research, 2D and 3D seismic, and gravity data acquisition, and offers 2D and 3D processing services for international clients.

### 3.2 Respondents of the Study

The respondents of the study were 30 employees of each company identified, and 25 clients of each company. The two groups of respondents responded to the same questions regarding the extent to which the company used the dimensions of knowledge management to attain quality and the effects of knowledge management on the quality assurance views of the selected industrial corporation in four aspects of quality.

## 4. Presentation, Analysis, and Interpretation of Data

The first part of this study determines the extent to which the selected petroleum companies utilized knowledge management strategies for the attainment of quality by means of collecting data on organizational culture, organizational processes, management and leadership, technology, and organizational politics. The succeeding tables present the data.

### 4.1 Use of Knowledge on Organizational Culture

Table 1 presents data on the extent to which the companies under study used the aspects of organizational culture in the practice of knowledge management. The companies used ten aspects of organizational culture in the practice of knowledge management.

**Table 1:** Extent to Which the Selected Oil Companies Uses Organizational Culture Aspects in the Practice of Knowledge Management to Attain Quality

Aspects	Employees N = 120		Clients N = 80		Item Average	
	$\mu$	Scale	$\mu$	Scale	$\mu$	Scale
Shared beliefs, values, and expectations	2.90	ME	3.00	ME	2.95	ME
Work values of employees	2.93	ME	2.60	LE	2.76	ME
Beliefs and expectations of the roles of top managers	2.70	ME	2.40	LE	2.55	LE
Social interaction within the organization	2.97	ME	2.73	ME	2.85	ME
Expectations of superior-subordinate relationships	2.87	ME	2.93	ME	2.90	ME
Employees' attitudes toward change	2.97	ME	3.20	ME	3.08	ME
Decision-making strategies	3.07	ME	2.67	ME	2.87	ME
Communication techniques	2.87	ME	2.87	ME	2.87	ME
Reward systems	2.47	LE	2.33	LE	2.40	LE
Peer relationships	3.00	ME	2.73	ME	2.86	ME
<b>Factor Average</b>	<b>2.87</b>	<b>ME</b>	<b>2.75</b>	<b>ME</b>	<b>2.81</b>	<b>ME</b>

Generally, to a moderate extent, the companies used social action within the organization, expectations of superior-subordinate relationships, and employees' attitudes toward change, decision-making strategies, and communication strategies to a moderate extent for the attainment of quality. The companies used reward systems to a less extent and peer relationships to a moderate extent.

These findings reveal that there were limitations in the use of shared meaning as viewed in the context of the goals and objectives of the companies. There were limitations in the ways in which the companies guided the employees toward understanding one another through shared meanings and expectations that were reflected in the relationships between the employer and employees and among the employees themselves. Limitations were also evident in the ways in which organizational culture was used as a mechanism of clarification and control that shaped the attitudes and behaviors of the organization members, as Robbins (2003) would view the situation.

These findings also reveal that the companies made limited use of its success stories, its celebrations and observances, and the interactions of its people especially in the informal gatherings of the company. Since it conditions the decision-making patterns of managers and the implementation of measures to improve the operations of the company, culture is an important component of the stock knowledge of the company which can help its members cope with the complications of attaining quality.

#### 4.2 Use of Organizational Processes in Knowledge Management

Specifically, to a moderate extent, the companies observed the proper channels in the direction of organizational communication. Although the employees viewed the definition of the lines of authority such as who reports to whom as observed to a great extent, the clients viewed this process as observed to a moderate extent, resulting in the general view that the company observed the process to a moderate extent. Also, to a moderate extent, the company defined the span of control of the different units of the organization. However, to a less extent, the company defined the duties and responsibilities of the staff, although to a moderate extent, it observed a system of employee supervision and a system of measuring employee performance.

**Table 2:** Extent to Which the Selected Companies Uses Specific Organizational Processes in the Practice of Knowledge Management to Attain Quality to Attain Quality

Aspects	Employees N = 120		Clients N = 80		Item Average	
	$\mu$	Scale	$\mu$	Scale	$\mu$	Scale
Observance of the proper channels in the direction of communication	2.87	ME	2.40	LE	2.63	ME
Definition of the lines of authority such as who reports to whom	3.47	GE	3.33	ME	3.40	ME
Definition of the span of control of the different units of the organization	2.97	ME	2.53	LE	2.75	ME
Definition of the duties and responsibilities of the staff	2.60	LE	2.53	LE	2.56	LE
Observance of a system of employee supervision	2.83	ME	2.73	ME	2.78	ME
Observation of a system of measuring employees' performance	2.67	ME	2.73	ME	2.70	ME
<b>Factor Average</b>	<b>2.90</b>	<b>ME</b>	<b>2.71</b>	<b>ME</b>	<b>2.80</b>	<b>ME</b>

From these findings, it could be inferred that to a limited extent, the company under study adopted systematic procedures for facilitating knowledge management within its ranks. The moderate observance of organizational processes did not, however, mean that there were disruptions in the performance of tasks in the organization. Sudan Petroleum Limited operated successfully with the limitations in its organizational processes, which had already become a part of its routine. Still, improvements were in order because knowledge management, as observed by Chen and Huang (2007), is shaped partly by organizational structure, which facilitates the implementation of

organizational processes. Since organizational processes affect the control and direction of operations, limitations in any of the procedures observed in the organization may also limit the generation of knowledge from its human resources.

#### 4.3 Use of Management and Leadership in the Practice of Knowledge Management

Specifically, used to a less extent by the company were the clear establishment of organizational priorities and the conduct of planning sessions for assuring a predictable future state for the company.

**Table 3:** Extent to Which the Selected Companies Uses Management and Leadership Strategies in the Practice of Knowledge Management to Attain Quality

Aspects	Employees N = 120		Clients N = 80		Item Average	
	$\mu$	Scale	$\mu$	Scale	$\mu$	Scale
Clear establishment of organizational priorities	2.33	LE	2.13	LE	2.23	LE
Conduct of planning sessions for assuring a predictable future state for the company	2.47	LE	2.53	LE	2.50	LE
Issuance of a manual of policies for employees	1.93	LE	1.60	N	1.76	N
Treatment of employees as partners rather than victims of change	1.97	LE	1.80	N	1.88	LE
Promotion of an open system which accepts criticisms and suggestions	2.40	LE	2.47	LE	2.43	LE
Preference for authority based on expertise in the field of work	2.77	ME	2.60	LE	2.68	ME
The use of continuous feedback to promote continuous improvement in the company	2.87	ME	2.80	ME	2.83	ME
The management of conflict through problem-solving approaches	2.53	LE	2.47	LE	2.50	LE
Development of mutual trust, accountability, and responsibility in the company	2.43	LE	2.47	LE	2.45	LE
Promotion of a positive organizational climate	2.17	LE	2.13	LE	2.15	LE
Promotion of positive interpersonal relations	2.33	LE	2.07	LE	2.20	LE
<b>Factor Average</b>	<b>2.40</b>	<b>LE</b>	<b>2.28</b>	<b>LE</b>	<b>2.34</b>	<b>LE</b>

A measure which was never used by the company was the issuance of a manual of policies for employees. To a less extent, the companies treated the employees as partners rather than victims of change and to a less extent promoted an open system which accepted criticisms and suggestions. To a moderate extent, the company used preference for authority based on expertise in the field of work and used continuous feedback to promote continuous improvement in the company. The measures which were used to a less extent were the management of conflict through problem-solving approaches, the development of mutual trust, acceptability and responsibility in the company, the promotion of a positive organizational climate, and the promotion of positive interpersonal relations.

These findings reveal that the application of management and leadership to the situation of the companies was limited in a way that could prevent the implementation of knowledge management where it was needed. With the limited clarity in the establishment of organizational priorities and the lack of planning in the company, knowledge management could hardly take place, since the climate for it was not favorable. The fact that no manual was disseminated among the employees indicated that the company could not implement knowledge management for lack of an appropriate basis for extracting knowledge from the employees.

Furthermore, the low level of confidence in the capabilities for knowledge management among the employees and the lack of openness to criticisms and suggestions were not conducive to collecting items of knowledge and experience among the employees from whom the company could have derived much information to be consolidated in its storehouse of knowledge. If change that takes place in the company is initiated by the management with directives issued to the employees,

opportunities for knowledge management could be curtailed. The same situation takes place when management of conflict is not based on problem-solving approaches.

Furthermore, if the management is supportive of the quality improvement processes introduced by employees, the results can be seen not only in the morale of the employees but also in the profitability of the company. On the contrary, if the management is not willing to use the employees' knowledge which has been accumulated through experience, the company loses much in the aspect of knowledge utilization. At this juncture, a good leader who can manage the consolidation of knowledge is needed by the company. This leader can also be the manager, who can implement needed changes in order to enable the company to address the needs of a global organization.

#### 4.4 Use of Technology Strategies in the Practice of Knowledge Management

**Table 4:** Extent to Which the Companies Uses Strategies Related To Technology in the Practice of Knowledge Management to Attain Quality

Aspects	Employees N = 30		Clients N = 15		Item Average	
	$\mu$	Scale	$\mu$	Scale	$\mu$	Scale
Observance of team self-management rather than a mechanistic system of work instructions to employees	2.63	ME	2.60	LE	2.61	ME
Observance of work systems that fit the requirements of the company	2.70	ME	2.67	ME	2.68	ME
Use of computers to facilitate work in the shortest possible time	3.77	GE	3.33	ME	3.55	GE
Conduct of consultation with the employees for the improvement of systems of work	3.23	ME	3.27	ME	3.24	ME
Requirement of computer literacy among the employees	3.03	ME	3.07	ME	3.05	ME
Promotion of work safety among the employees	3.47	GE	3.20	ME	3.33	ME
<b>Factor Average</b>	<b>3.14</b>	<b>ME</b>	<b>3.02</b>	<b>ME</b>	<b>3.08</b>	<b>ME</b>

Specifically, to a moderate extent, the company observed team self-management rather than a mechanistic system of work instructions to employees and work systems that fitted the requirements of the company. Generally, to a great extent, the company used computers to facilitate work in the shortest possible time. The employees viewed this strategy as used to a great extent, but the clients viewed it as used to a moderate extent. Nevertheless, by average scoring, the result was that generally, the strategy was used to a great extent. To a moderate extent, the company conducted consultation with the employees for the improvement of the systems of work, required computer literacy among the employees, and promoted work safety among the employees.

From these findings, it could be inferred that to a limited extent, the companies exerted efforts to promote teamwork among the employees in order to facilitate the transfer of knowledge among the members of the team. Since knowledge is a daily business process that involves the transfer of relevant information across the different levels and structures of the organization for the purpose of arriving at sound decisions (Antonic, 2005), teamwork facilitates the sharing of knowledge among the employees. The observance of systems that are in line with the needs of the company can also facilitate the transfer of technology among the employees. This strategy was used to a limited extent by the companies.

In the implementation of knowledge management, automation becomes a necessity; for this reason, the employees should possess computer literacy. The strategy of using computers to expedite the work was used by Sudan Petroleum Limited in the majority of cases, and could be an assurance that knowledge could be generated in the fastest possible time; still the presence of some employees who still had to learn about computers could impose limitations on their work performance. The limited instances of consultation with the employees and the assurance of safety among the employees could restrain the sharing of knowledge among them.

4.5 Use of Organizational Politics in the Practice of Knowledge Management

Specifically, the company used, to a moderate extent, seven strategies of organizational politics to promote knowledge management among the employees. To a moderate extent the company used the distribution of information to limited members of the company, the enforcement of control in the interactions of people in the various departments, and the consolidation of the power of several people toward a common objective. To a less extent, the company used the strategy of cultivating social relationships with other officials of the company accomplish some gozals. To a moderate extent, the company used the strategies of providing support for persons who have been of help in the past, enhancing the public image of the company in order to gain clientele support, and attributed creditable work to all members of the different teams to gain the support of the members.

**Table 5:** Extent to Which the Companies Use Strategies of Organizational Politics in the Practice of Knowledge Management to Attain Quality

Aspects	Employees N = 120		Clients N = 80		Item Average	
	$\mu$	Scale	$\mu$	Scale	$\mu$	Scale
Distribution of information to limited members of the company	3.27	ME	3.20	ME	3.23	ME
Enforcement of control in the interactions of people in the various departments of the company	2.90	ME	2.80	ME	2.85	ME
Consolidation of the power of several people toward a common objective	2.87	ME	2.93	ME	2.90	ME
Cultivation of social relationships with other officials of the company to accomplish one's goals	2.57	LE	2.40	LE	2.48	LE
Provision of support for persons who have been of help in the past	3.03	ME	3.00	ME	3.01	ME
Enhancement of the public image of the company in order to gain clientele support	3.07	ME	3.07	ME	3.07	ME
Attribution of creditable work to all members of one's team to gain the support of the members	2.77	ME	2.53	LE	2.65	ME
<b>Factor Average</b>	<b>2.92</b>	<b>ME</b>	<b>2.85</b>	<b>ME</b>	<b>2.88</b>	<b>ME</b>

These findings reveal that there were limitations in the use of organizational politics at the Companies. If one were to analyze the mechanisms of knowledge management, one would realize that it is not a matter of automation of technological advancement. It is, rather a procedure of making people contribute their knowledge about company operations, analyzing the usefulness and applicability of the knowledge accumulated by people through the years, and testing the viability of applying the strategies that people endorse for ensuring the profitability of the company. Needless to say, in drawing up sources of knowledge, it is necessary to ensure wholesome relationships among the people whose knowledge the company seeks to share. The promotion of wholesome relationships among people can be actualized through company support for the efforts of the employees to introduce innovative techniques of conducting business with the clientele.

In the sharing of knowledge, social exchange is an important factor, since the process of extracting knowledge out of a resource person may not be easy in the sense that it might entail the use of reward systems. Still, although it might be necessary to limit the sharing of knowledge among a specific group to avoid leakage of knowledge to other organizations, the cultivation of relationships among the members of a knowledge management team is necessary. Also needing the attention of the company is the projection of a credible image to the public that generates client trust and confidence in the operations of the company. This strategy involves the projection of a public image of unity among the employees. The wholesome public image is attainable through the intensification of the level of employee morale that takes place when they are credited for the good work that they have performed for the company through the sharing of knowledge and experience to improve its operations.

4.6 Summarized Data on the Extent of Use of Knowledge Management Strategies

**Table 6:** Summarized Data on the Extent to Which the Company Uses the Dimensions of Knowledge Management to Attain Quality

Dimensions	Employees N = 120		Clients N = 80		Factor Average	
	$\mu$	Scale	$\mu$	Scale	$\mu$	Scale
Organizational Culture	2.87	ME	2.75	ME	2.81	ME
Organizational Processes	2.90	ME	2.71	ME	2.80	ME
Management and Leadership Strategies	2.40	LE	2.28	LE	2.34	LE
Technology	3.14	ME	3.02	ME	3.08	ME
Organizational Politics	2.92	ME	2.85	ME	2.88	ME
<b>General Average</b>	<b>2.85</b>	<b>ME</b>	<b>2.72</b>	<b>ME</b>	<b>2.78</b>	<b>ME</b>

4.7 Effects of the Sharing and Management of Knowledge of Knowledge on the View of Quality as Reliability

Table 7 presents the effects of the sharing and management of knowledge on the views of quality assurance as reliability in the Selected Companies. The respondents identified eight effects of the sharing and management of knowledge in the company. Among these effects, and efficiency in communication.

**Table 7:** Effects of the Sharing and Management of Knowledge on the Views of Quality as Reliability by the Selected Companies

Effects	Employees N = 120	Clients N = 80	Total
	Scale	Scale	Scale
Increased investment on the training of employees	13.33	20.00	15.55
More attention to identifying and rectifying minor errors or flaws in work	16.67	46.67	26.67
Extensive use of simulation to solve problems	10.00	33.33	17.78
Efficiency in communication	33.33	53.33	40.00
Regular review of standard procedures that cover operations and contingencies	20.00	33.33	24.44
Emphasis on performance appraisal as a means to strengthen the employees' professional judgment	13.33	20.00	15.55
Use of quality resources and technology	16.67	20.00	17.78
Practicing teamwork for attaining the objectives of the company	3.33	20.00	2.22

This finding reveals that generally, the highest number of respondents regarded communication competence as an outstanding effect of knowledge management. Taking into consideration that the nature of the sharing of knowledge is a social process that involves interaction and exchange of ideas and opinions, it could then be inferred that communication processes were involved in the use of the strategies of knowledge management. In spite of the limited extent to which the company used the various strategies of knowledge management, the management exerted efforts to facilitate social exchange among the employees. As disclosed in Table 1 of this study, social interaction was involved in the use of the aspects of organizational culture for knowledge management, and as revealed by Table 3, although to a limited extent, the company promoted an open system which allowed the expression of criticisms and suggestions.

These procedures could be carried out through open discussion, analysis of ideas, and opinions, and the consolidation of knowledge after exchanges of knowledge for the improvement of company operations. It could, therefore, be inferred that communication efficiency took place in the process of

knowledge sharing among the employees and their superiors, no matter how limited the utilization of knowledge management strategies had been. The attainment of efficiency in communication could be regarded as a significant development in the view of quality as reliability by the company because it could enhance the image of the organization with its clientele.

#### 4.8 Effects of the Sharing and Management of Knowledge on the View of Quality as Excellence

The data show that the respondents regarded the sharing and management of knowledge as a beneficial process in the organization in the sense that if quality is regarded as excellence, it follows that innovation in work methods should take place in the organization. The promotion of quality in the operations of the company is a demanding process. If the notion of quality is associated with excellence, organizational processes and work methods assume importance over and above infrastructure and the physical presentation of the company.

**Table 8:** Effects of Sharing and Management of Knowledge on the Views of Quality as Excellence of Selected Companies

Effects	Employees N = 120	Clients N = 80	Total
	Scale	Scale	Scale
Promotion of continuous improvement in work processes	30.00	40.00	33.33
Development of creativity among employees by means of using problem-solving approaches	30.00	33.33	31.11
Establishment of explicit and operational standards	23.33	20.00	22.22
Promotion of high involvement and commitment among employees	26.67	40.00	31.11
Encouragement of innovation in work methods	30.00	46.67	35.55
Exercise of informed and proactive leadership	16.67	26.67	20.00
Formation of self-managed work teams	16.67	20.00	17.78
Appointment of the right manager for the right position	3.33		2.22

Innovations assume importance especially if the company aspires to be globally competitive. The improvement of work methods, which can be attained through openness to innovations becomes an important part of the aspirations of the company to improve its quality assurance strategies. The consciousness of the importance of innovations in the improvement of work methods is a result of the sharing of knowledge among the employees.

Another effect of the sharing and management of knowledge is the awareness of the importance of continuous improvement in the work processes of the company. In the efforts of the company to attain quality, knowledge on the ways to attain continuous improvement in work processes becomes accessible in the sharing process. The results are beneficial to the efforts of the company to attain global competitiveness.

#### 4.9 Effects of the Sharing and Management of Knowledge on the View of Quality as Fitness of Purpose

Table 9 presents data on the effects of the sharing and management of knowledge on the view of quality as fitness of purpose by the Companies. The respondents identified eight effects of the strategy. Among these effects, one was highlighted by the majority of the respondents as a salient effect of the sharing and management of knowledge on the view of quality as fitness of purpose.

**Table 9:** Effects of Sharing and Management of Knowledge on the Views of Quality as Fitness of Purpose of the Companies

Effects	Employees N = 120	Clients N = 80	Total
	Scale	Scale	Scale
Communication of company objectives to all employees	23.33	33.33	26.67
Focus on processes that produce high quality products	16.67	26.67	20.00
Determination of the specific outcomes of quality control measures	16.67	26.67	20.00
Setting time frames for the achievement of production targets	20.00	33.33	24.44
Definition of success criteria for the achievement of company goals	63.33	80.00	68.89
Determination of the competence of employees to perform their work assignments	13.33	26.67	17.78
Identification of key decisions that have to be made by senior managers	16.67	26.67	20.00
Performance of the crucial role by the right manager	3.33		2.22

This finding discloses that the sharing and management of knowledge within these companies is useful, relevant and beneficial for its operations because in the course of open discussion, the employees are able to express their ideas regarding the ways to promote quality in work processes and strategies. The interaction that takes place gives rise to the externalization of ideas regarding the dimensions that define success and quality in the operations of the company. In the process, they associate quality as fitness of purpose and in retrospect, examine the company's vision, mission, goals and objectives. As they work through determining the extent to which they have fulfilled the company's long-term and short-term goals, their consolidated ideas and opinions resolve themselves into a definition of the success criteria for the achievement of company goals. The employees are then able to associate quality with fitness of purpose.

#### 4.10 Effects of the Sharing and Management of Knowledge on the View of Quality as Conformance to Specifications

The respondents identified eight effects of this strategy. Among them was an effect which the highest number of respondents identified as the foremost consequence of the processes of sharing and management of knowledge in the company.

**Table 10:** Effects of the Sharing and Management of Knowledge on the View of Quality Conformance to Specifications of the Companies

Effects	Employees N = 120	Clients N = 80	Total
	Scale	Scale	Scale
Identification of the specifications involved in the work process	16.67	20.00	17.78
Identification of operational procedures involved in work performance	30.00	13.33	24.44
Prevention of errors in the production process	16.67	20.00	17.78
Elimination of waste in the work process	13.33	20.00	15.55
Promotion of safety in the workplace	26.67	40.00	31.11
Careful monitoring of work processes	16.67	20.00	17.78
Delineation of the limits of acceptability of variability in work processes	13.33	13.33	13.33
Creation of essential impact by the manager	3.33		2.22

This finding reveals that the sharing and management of knowledge contributes to the growth of the concept of quality as conformance to specifications. In the process of extracting knowledge from the experienced employees, the management can facilitate the re-examination of the company processes and operations and invite the employees' ideas and opinions regarding the definition of conformance



to specifications. Even if definitions of conformance and non-conformance existed in the past, it is still necessary to revisit the concept in order to make the company globally competitive. Knowledge management has the effect of facilitating the entry of innovative definitions of conformance to specifications.

#### 4.11 Hypothesis Testing

This study advanced for testing at the 0.05 level of significance which states that there are no significant differences between the views of the employees and those of the clients regarding the extent to which the company uses knowledge management for the attainment of quality. Table 11 presents the results of the test of the hypothesis.

**Table 11:** Results of the Fisher's T-Test of Mean Differences between the Employees' and the Clients' Views of the Extent to which Companies Uses Knowledge Management for the Attainment of Quality

Factors Compared	df	Critical t	Computed t	Interpretation	Decision
Organizational Culture	43	2.014	1.0723573	NS	Failed to Reject
Organizational Processes	43	2.014	1.0236186	NS	Failed to Reject
Management and Leadership Strategies	43	2.014	1.2949692	NS	Failed to Reject
Technology	43	2.014	0.648556	NS	Failed to Reject
Organizational Politics	43	2.014	0.5292229	NS	Failed to Reject

The results of the test of the hypothesis could be traced back to the basic data which show that generally, in the aspect of organizational culture, both groups of respondents viewed the strategies as used to a moderate extent. This result was the same in the case of organizational processes. In the use of knowledge management in the aspect of management and leadership, both groups of respondents signified that the strategies were used to a less extent. The employees and the clients both viewed the strategies related to technology and organizational politics as used to a moderate extent. Taking into consideration the results of the Fisher's t-test, the researcher failed to reject the null hypothesis.

### 5. Proposals for the Enhancement of the Utilization of Knowledge Management in the Selected Petroleum Industry in the MENA Region

This presents proposals for the enhancement of the utilization of knowledge management strategies in various aspects in the selected petroleum companies. The proposals are addressed to the management of the company because the prime movers and front-liners of the company are charged with initiating innovations and are, therefore, in a position to implement proposals that result in the enhancement of the operations of the company. For this purpose, the researcher presents the proposals for enhancement, using the various aspects of knowledge management as the basis.

#### 5.1 Rationale

Organizations today are facing numerous challenges that are brought about by competition resulting from globalization. More than ever, with these pressures, organizations are searching for ways by which they could attain quality. As they strive to excel amid competition, a number of organizations re-examine the relevance of their goals and objectives to the present situation. In examining the core that justifies the organization's existence, the managers of organizations then turn toward an analysis of the environment in which they operate. In their efforts to explore various possibilities to address the environmental challenges of the present era, organizations utilize the knowledge management strategy helps and formulate a road map that leads them toward the attainment of quality.

Knowledge Management consists of the collection of key processes that govern the creation, dissemination, and utilization of intellectual property within the organization for the purpose of

implementing innovations and addressing new trends of conducting business in a global economy. Knowledge Management is the utilization of the ideas, judgments, talents, relationships, perspectives, and information possessed by individuals and groups in the organization. By utilizing the intellectual assets of their members, organizations seek to empower their employees to implement innovative strategies toward improving services, shortening the production time of some goods, innovating on production techniques and delivering high quality products, heightening employee motivation, and working toward the satisfaction of customers. These benefits are attainable through the enhancement of the various aspects comprising knowledge in the organization.

These proposals are aimed at improving the operations of the company under study and ensuring the sustainability of its use of the intellectual assets of its human resources. In the presentation of the proposals, the researcher constructs a matrix which shows the areas of concern and the Knowledge Management strategies that are used toward the acquisition of intellectual assets. The matrix has two columns. The first column shows the areas of knowledge, and the second column shows the strategies that can be used for collecting, sharing, and utilizing knowledge.

Areas of Knowledge	Proposals for Enhancement
Organizational Culture	<ol style="list-style-type: none"> <li>1. Extract knowledge of organizational culture by means of making the employees write down the components of culture that can be used for management and leadership in the various units of the organization. Make the employees include shared beliefs and expectations, work values, views on the roles of managers, ceremonies, celebrations, and observances, superior –employee relationships, social interaction patterns, communication patterns, decision-making strategies, reward systems, and formation of informal groups within the organization.</li> <li>2. Make the employees identify the components of organizational culture which need to be modified in order to make the organization relevant to change.</li> <li>3. Allow them to engage in the modification of the organizational culture of the organization through their own strategies.</li> <li>4. Evaluate the outcomes of culture modification.</li> </ol>
Organizational Processes	<ol style="list-style-type: none"> <li>1. Send a memorandum to the employees to inform them that a series of meetings will be held for the purpose of reviewing the provisions of the manual for employees and making them relevant to the business environment.</li> <li>2. During the first meeting, emphasize to the participants the importance of an exchange of ideas in the reformulation of the provisions governing organizational processes.</li> <li>3. Begin with the discussion of the organizational chart by asking the employees whether the existing organizational structure is still functional.</li> <li>4. Take note of the participants' ideas on the restructuring of the organizational chart including the definition of lines of authority, span of control, duties and responsibilities of staff, direction of communication, observance of systems of supervision, and performance evaluation systems.</li> <li>5. Keep a record of all suggestions and recommendations, make a draft manual, and subject it to the employees' ratification.</li> </ol>
Management and Leadership	<ol style="list-style-type: none"> <li>1. Review the records of the staff members to re-examine their expertise in the field of supervision to which they are assigned.</li> <li>2. Call a meeting of the staff members and require them to submit a summary of their qualifications, experience within and outside the company, professional upgrading that includes attendance at seminars-workshops, conventions of professional organizations, membership in business associations, and capabilities to improve the company.</li> <li>3. Invite the staff to examine the organizational policies of the company, the development plans, the reward systems, work assignments, problem-solving techniques, and the company's efforts toward improvement.</li> <li>4. Conduct a series of brainstorming sessions at which the staff discuss their ideas and make recommendations for redirecting and improving the management and leadership roles of the staff.</li> <li>5. Make the results of the discussion a part of the company policies.</li> </ol>

Areas of Knowledge	Proposals for Enhancement
Technology	<ol style="list-style-type: none"> <li>1. Form a team to review all memoranda, directives, and instructions governing the work methods in the company.</li> <li>2. Instruct the team to record all observations regarding the work systems of the company, especially the strategies of safety management, shortening of procedures, and the use of automation systems.</li> <li>3. Disseminate the observations of the team among the staff members, especially the production, marketing, and research and development managers.</li> <li>4. Invite the staff to study the observations of the review team and formulate strategies to enhance the company's work systems.</li> <li>5. Seek a consensus regarding the adoption of the recommendations to improve the company's work systems and make them a part of the company policies.</li> </ol>
Organizational Politics	<ol style="list-style-type: none"> <li>1. Invite the staff to monthly meetings in order to ensure their transparency regarding their support of the company policies and organizational strategies.</li> <li>2. Solicit the ideas of the staff on the ways to enhance the image of the company before the public.</li> <li>3. Encourage the staff to think of the possibility of advertisements, promotions, and giving of premiums to customers of good standing.</li> <li>4. Encourage the staff to maximize the creativity of their subordinates for this purpose.</li> <li>5. Make the decisions a part of company policies.</li> </ol>
Quality Assurance	<ol style="list-style-type: none"> <li>1. Conduct brainstorming sessions with the staff regarding the ways to ensure the creation of a strong image of reliability for the company.</li> <li>2. Encourage the staff to solicit the ideas of their subordinates regarding quality assurance measures, especially in the aspect of creating an image of reliability for the company.</li> <li>3. Conduct regular meetings of the staff for the purpose of obtaining their reports on the ways in which they build excellence in the operations of the company.</li> <li>4. Review the quality assurance measures of the company and encourage the staff to comment on their fitness and to make necessary revisions for incorporation in company policies.</li> <li>5. Call a meeting of the staff and invite them to review their work methods, the ways of issuing instructions to their subordinates, the monitoring of work processes, the prevention of production errors and the implementation of work safety measures and prevention of industrial accidents.</li> <li>6. Consolidate all ideas of the staff and make them a part of the company policies after ratification.</li> </ol>

It is possible that the implementation of the proposals for enhancement may take time for the company. The review of policies, the meetings, arrival at consensus, consolidation of policies, and publication of the manual are time-consuming. The efforts of the company to implement knowledge management for attaining quality require the time and expertise of top management. Still, these proposals are realistic and attainable.

## 6. Findings, Conclusion, and Recommendations

### 6.1 Findings

The study yielded findings which revealed that as viewed by the employees and by the clients, Sudan Petroleum Limited used, to a moderate extent, knowledge management strategies in the aspects of organizational culture, organizational processes, technology and organizational politics. The company used, to a less extent, knowledge management strategies in the aspect of management and leadership for the attainment of quality.

The results of the statistical test showed that the hypothesis failed to be rejected. This outcome revealed that there were no significant differences in the views of the employees and clients regarding

the extent to which the company used knowledge management strategies for the attainment of quality.

Regarding the effects of the use of knowledge managements on the views of quality by the respondents, the data revealed that efficiency in communication was the foremost result of the view of quality as reliability. Encouragement of innovation and work methods and the promotion of continuous improvement in work processes were the results of the view of quality as excellence. The definition of success criteria for the achievement of company goals was cited by the majority of the respondents as the effect of the view of quality as fitness of purpose. The promotion of safety in the work place was the main effect of the view of quality as conformance to specifications.

## 6.2 Conclusion

In the context of the findings of the study, the researcher concludes that the limitations of the use of knowledge management strategies by the company could impose restrictions on the capability of the company to meet global standards because knowledge management has an impact on the attainment of quality.

## 6.3 Recommendations

From the findings of the study, the following are the recommendations;

1. The petroleum industries in the MENA Region make an inventory of the qualifications, experience, and professional upgrading status of its top and middle managers for the purpose of determining their contributions in terms of knowledge to the improvement of company operations.
2. The companies should reviews its definition of success criteria in order to make them responsive to the demands of a global economy.
3. The companies require the top and middle level managers to collect narratives about the experiences of their subordinates for the purpose of identifying the employees who can contribute their knowledge to the improvement of the company.
4. That studies on the following topics be conducted by future researchers:
  - The Management Philosophy of the Top Ten Asian Corporations: Its Impact on Employee Performance
  - The Effects of Knowledge on the Customers' Cultural Orientation on the Success of Business Transactions in Three Selected Asian Countries
  - The Impact of Body Language as a Communicative Strategy in Business Transactions with Middle Eastern Customers
  - The Impact of Knowledge Management on the Success of Food Chains in the Middle East

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