

# **Testing the Effect of Knowledge Management Capabilities on Service Quality**

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## **Abstract**

According to the literature about knowledge management capabilities, there are four main capabilities that need to be established and managed effectively in the company, to enhance the performance. The four main capabilities are technical resources, structural resources, cultural resources, and human resources. The main purpose of the current study is to identify the availability of the four capabilities and test their effect on service quality. A research model has been developed to describe the hypothesized relationship between the study variables and the needed data to test the conceptual model that has been collected from Saudi Binladen group (SBG) in Jeddah- Saudi Arabia. The data was collected by using a questionnaire that was developed based on the previous literature and according to the statistical analysis of the collected data, there are a positive effect for all the knowledge management capabilities on service quality. Several statistical techniques have been used to validate the model and test the hypotheses such as Reliability analysis and Regression analysis. The results of the current study contribute in filling the gap in the theory regarding the effect of knowledge management capabilities on service quality especially in Saudi Arabia. Also, the results enhanced the managers awareness about the importance of developing and managing effectively the knowledge management capabilities to improve the service quality.

**Keywords:** knowledge management capabilities, service quality, and Jeddah.

## **1. Introduction:**

Knowledge management could be defined as reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those that need it. Knowledge management is expected to have a positive impact on the organizational effectiveness (Jennex, 2005). In 2005, Jennex and Olfman pointed out the importance of knowledge management practices as a critical success factors (CSFs), they identify 12 critical knowledge management practices. In knowledge-based age, knowledge is viewed as the key strategic resource for organizational subsistence,

constancy, development and perfection (Hassan and Al-Hakim, 2011). In addition, knowledge is considered the grounds for the development of roots competencies that will differentiate competitive advantage as well as improve organizational performance. In fact, Knowledge management would help organizations to stay competitive, through input information with the external partners and knowledge of their competitors 'products, services, strategies and best practices (Kyobe, 2010).

Services are intangible and can only be experienced by customers; however, the production of a service occurs simultaneously and in the same location as its consumption (Fonseca, 2009). Service quality is the degree to which a service is fulfilled, and it refers to the results of the comparison between a customer's expectations and his or her perceptions of the service after it has been delivered (Crosby, 1979; Grönroos, 1982; Levitt, 1972). Etzel et al. (2001) stated that service quality is measured by customers based on a comparison between their real experiences and their expectations toward the service. Customer expectations toward the service standard will be influenced by their own requirements, previous experience and public reputation. In this context, it can be concluded that a customer's satisfaction depends on his or her expectations and how he or she perceives the service quality that he or she actually receives. When the real experiences are better than the customer's expectations, the perception of the service quality will obviously be higher, and vice versa. Simultaneously, the higher the service quality, the more new and existing customers could be attracted and retained, and even lured away from competitors (Babakus et al., 2004; Petruzzellis et al., 2006). Therefore, service quality is crucial for attracting new customers and, more significantly, retaining existing ones (Li et al., 2006).

This issue has been one of the most discussed matters in marketing literature, and is seen as a vital element in management strategies to achieve success or survive in a competitive environment (Martínez and Martínez, 2007). Many firms have, therefore, decided to improve service quality in order to differentiate their services from those of other companies, and have utilized various tools to evaluate service quality in order to appropriately assess and improve their service performance, with such assessments serving as a basis for both employee and corporate rewards (Akmanligil and Palvia, 2004). Grönroos (1982) suggested that the perception of service quality by customers during service delivery will be influenced mainly by two factors: technical quality (what the supplier delivers), and functional quality (how the supplier delivers). Technical quality reflects the outcome of the service act, or what customers experience during the service encounter, while functional quality is defined as the customers' perceptions of the interactions taking place during the delivery of the service. Parasuraman et al. (1985, 1988, 1994) stated that service quality should be evaluated when providing the service, and that service quality is the level of enjoyment the customer experiences during the consumption process.

Parasuraman et al. (1985, 1988, 1994) further argued that consumers evaluate service quality using similar criteria, which can be grouped into five dimensions: tangibility; reliability; responsiveness; assurance; and empathy. These five dimensions, along with service items, yield the SERVQUAL scale for measuring service quality, and many previous studies on service quality have been developed around this scale (Kuo et al., 2009; Yee et al., 2010). In

addition, Rust and Richard (1994) offered three dimensions – the service product (i.e. technical quality), the service delivery (i.e. functional quality), and the service environment components of service quality. Brady and Cronin (2001) suggested that service quality measurement consists of interaction quality, physical environment quality, and outcome quality. More specifically, interaction quality consists of attitude, behavior, and expertise; physical environment quality comprises ambient conditions, design, and social factors, and outcome quality is composed of waiting time, tangibles, and valence. As a result, service quality is defined as the whole service quality perceived by customers after using the service (Liu et al., 2010), and it is premise of customer satisfaction. Overall, service quality is given significant importance owing to its close relationship with cost, financial performance, and customer retention (Saravanan and Rao, 2007). Therefore, enterprises have started focusing on customer perceptions of service quality and subsequently on developing strategies by which to achieve customer satisfaction. Hence, the main aim for the current study is to investigate how different knowledge management practices can help in improving the service quality.

## **2. Literature review:**

### **2.1 Knowledge Management Capabilities**

Knowledge is an important asset that organization should realize in order to be competitive. Knowledge can be classified in two types: tacit and explicit. The two are important to organizational development, as a proactive asset to adjust to changes in dynamics business environment. In order to capitalize on this knowledge base, firms have to organize and manage it in creative and useful ways. Competitive atmosphere of today's business world, is complex, varied and extensive that the preservation and promotion of sustainable competitive advantage, is a major concern for manager (Azizi et al., 2016). In order to develop a robust Knowledge Management, a viable rich network development is needed. Rich network development is based on relating with partners with mutual respect. This is in support of the value in team work that each party sees others as complementary in the system in which they are all contributors. Rollag et al., (2005) stated that this practice is important in managing human resource in organizations to get the best possible from new hires and the old ones because required fluidity would be feasible in all interaction.

Learning curve as a concept believes that previous experience from an activity can aid proficiency in undertaking such or related task in the future. This concept also implies that an organization will eventually be better from undertaking a task over and over again. In reality, it is seen as valid but based on certain conditions that must be put in place before an organization or individual can achieve this proposition from the learning curves advocates. This idea is related to what knowledge management is aimed at achieving, by reflecting on past experience, resources and activities to fashion out ways in which future can be enhanced (Green et al., 2012). In practice, organizations have not been able to maximize all these potentials courtesy of poor attention. From various authors and researchers, the enabling environment to bring past experience to its full potential has not been judiciously managed. The consistent challenges on the way of learning curve development include communication challenges, poor team grooming and development and leadership's little attention. All these aforementioned result in inability of an organization to harvest

from the past for future development. Importance of environment is recognized for robust knowledge acquisition, but because of the abstract nature of Knowledge, attention must be on conditions under which the players on knowledge management should operate. This is similar to what is described as community of practice. Knowledge can be valuable when people in the systems pay attention to it and recognize the reasoning behind such knowledge needs. Thus the structure of the organization and how the employees are managed become an important variable in generating and capturing of appropriate knowledge (Nehzat, 2015).

The individual where tacit knowledge resides must be motivated enough to be ready and open to release such knowledge. Moreover, with consistent problem with knowledge management, the people aspect needs new attention to foster knowledge flows against the popular view that focuses on technology. Interaction is recognized as the key before all the system can be synchronized to achieve more effectiveness that knowledge management aims at. Hence, the idea that knowledge management is equal to the body of info like database, documentation, and books is faulted because all these are knowledge representation purely based on the past events but the idea of knowledge management is based on knowing towards value addition to the future. The modernization of supply chain activities depends on the support of the knowledge and uses some mechanisms that create it, shares among supply chain members, and uses this knowledge, in addition to a way to store this knowledge to be used in the future.

If the mechanisms exist in the organizations and in particular in the supply chain, can be improved and excellence in supply chain activities. The influence of knowledge management system on supply chain quality management has been the subject of many experimental studies. In another study, solutions for adoption of knowledge management in the supply chain to overcome strategic, organizational, technological, cultural and personal barriers and focus on better solutions and develop strategies for their implementation are identified and prioritized and presents a framework to identify and rank the solutions to overcome barriers to the adoption of knowledge management in the supply chain (Choi and Rungtusanatham, 2014). Collins et al. (2010) propose knowledge management as a key enabler of supply chain management and a critical element in corporate environments, as well as a source for high volume of information. they examined knowledge management among small and medium organizations' supply chain management. Their study results show the necessity of the internal organizational relationship for the exchange of knowledge between companies and their supply chain partners and know it is possible specific knowledge creation through increased confidence and motivation. They believe that knowledge is an important factor to achieve a competitive advantage among supply chain competitors.

Andreeva and Kianto (2012) have examined the impact of sharing knowledge management practices on better integrating between supply chain partners and state that this cooperation can increase the quality of organizational knowledge (Teoman and Ulengin, 2017). They believe that in today's competitive environment, the supply chain must respond quickly to changes in customer demand and is not possible except with the transmission of data, sharing knowledge and building relationships based on trust and cooperation. In addition, Wu (2008) stated that the creation of value through supply chain integration is a valuable potential way to provide competitive advantage and

organizational performance improvement because the competition is not only between organizations but also between their supply chains. The knowledge creation in the supply chain is affected by customer relationship management (CRM), research and development with the approach of customer-orientation and clarification of roles and responsibilities, as well as supplier's relationship management (SRM) (Teoman and Ulengin, 2017).

Scharmer, (2001) also described the necessary skills of a real leader in managing knowledge as "Self-transcending knowledge" i.e., the ability to predict future. In the lower level of analysis, creation, sharing and storage of knowledge have an intermediate situation and still need more productive work in the field of knowledge creation in supply chain, sharing and strategies for maintenance and re-operation in the company's supply chain. Also, the application of knowledge is in a dangerous situation, which indicates that the knowledge in supply chain is not used effectively in the company. Also, in the supply chain quality management, quality management of suppliers, leadership of supply chain quality and supply chain information systems are in an intermediate state.

There is still a need for some activities to improve channels of communication with suppliers and the way they are selected. Also, supporting by senior management of supply chain quality management should be taken to be continuous. Finally, it is necessary to utilize information technology for mechanizing and modernizing the company's supply chain. (Choi and Rungtusanatham, 2014).

## **2.2 Service Quality**

Service quality when linked with resources and capabilities helps in achieving efficient organizational performance, thereby making it have a competitive advantage against rivals. The customers will also be driven through this performance and will be keenly interested in all the activities of the organization. In fact, if the service quality of the organization is improved, it will not only attract customers but other stakeholders as well. Different researchers defined the term 'service quality' differently based on their expertise and knowledge of the presented context. Service quality could be defined as, "The degree to which a service is fulfilled, and it refers to the results of the comparison between a customer's expectations and their perceptions of the service after it has been delivered". According to Grönroos, (1984) and Fleix, (2017) "Service quality means a form of an attitude, related but not equivalent to satisfaction that results from the comparison of expectation with performance".

Several research texts in the literature relate customer satisfaction and service quality together, and find positive relationship between both of them. Customer satisfaction depends on the customers' expectations and perceptions of the service quality that they actually receive. When the real experiences are better than the customer's expectations, the perception of the service quality will obviously be higher, and vice versa. Simultaneously, the higher the service quality, the more new and existing customers could be attracted and retained, and even be lured against competitors" (Petruzzellis et al., 2006). Lu et al. (2015) found out that customers' expectations and satisfaction are closely linked to that of the service quality. The researchers also quoted that, "When a customer has an enjoyable experience, this service experience will transform into a new service expectation, and so the next experience will be compared to the previous one. Thus, enterprises should incessantly surpass customer expectations in order to provide satisfying

services and enhance service quality. Apart from the products, customers and consumers seek proper service to be provided to them from the organization. This, in turn, will help in retaining the old customers and gaining new ones (Tseng, 2016).

Service quality is given significant importance owing to its close relationship with cost, financial performance, and customer retention. Enterprises have started focusing on customer perceptions of service quality and subsequently on developing strategies by which to achieve customer satisfaction (Saravanan and Rao, 2007). Gronroos (2000) mentioned three dimensions for service quality which are: output technical quality, service performance quality, and organization's mental picture. The study validated the use of these three dimensions.

Knowledge management capabilities and service quality are positively related, due to the enhancement of service quality. This was verified by other researchers as well. The corporate growth is supposed to be concentrated on the customers, data warehousing, data mining, and the integration between computer technology and explicit knowledge that will help identify potential customer knowledge, maintain customer relationship, and enhance service quality (Tseng, 2016). Other researchers also found that the intangible resources are important determinants for organizational success because they are characterized as being scarce, specialized and difficult to be imitated or traded (Abu Bakar and Ahmad, 2010).

### **3. Development of research hypotheses**

Analysing the previous literature regarding the knowledge management capabilities and service quality demonstrated that the different knowledge management practices have a positive effect on enhancing the service quality. Therefore, the following model was set to examine the hypothesized relation between the main variables of the current study.

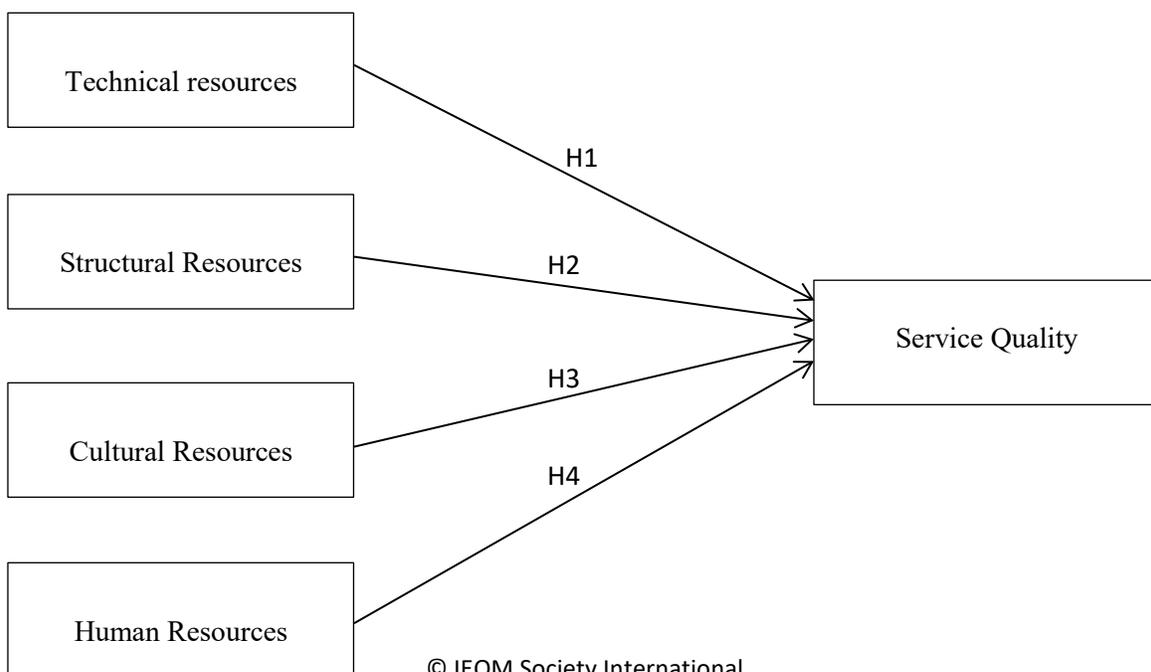


Figure 1. Suggested research model

According to the previous model, the following hypotheses were developed to demonstrate and examine the relation between the study variables’:

- H1.** Technical resources of knowledge management capability have a positive impact on service quality.
- H2.** Structural resources of knowledge management capability have a positive impact on service quality.
- H3.** Cultural resources of knowledge management capability have a positive impact on service quality.
- H4.** Human resources of knowledge management capability have a positive impact on service quality.

#### 4. Research design methodology

A survey was developed to collect the data from the Saudi Binladen group (SBG) in Jeddah- Saudi Arabia, the survey statements are presented in Table 1.

Table 1. Survey Questions

Variable	Statement
Knowledge Management Capabilities	<ul style="list-style-type: none"> <li>• <b>Technical resources:</b> <ul style="list-style-type: none"> <li>-Our organization has clear rules for formatting or categorizing its product knowledge.</li> <li>-Our organization has clear rules for formatting or categorizing process knowledge.</li> <li>-Our organization members use technology to cooperate with other persons inside the organization.</li> <li>-Our organization members use technology to search for new knowledge.</li> <li>-Our organization members use technology to retrieve knowledge about its products and processes.</li> <li>-Our organization members use technology to retrieve knowledge about its markets and competition.</li> </ul> </li> <li>• <b>Structural Resources:</b> <ul style="list-style-type: none"> <li>-Our organization structure facilitates the discovery of new knowledge.</li> <li>-Our organization structure facilitates the creation of new knowledge.</li> <li>-Our organization has reward system for sharing knowledge.</li> <li>-Our organization facilitates knowledge exchange across functional boundaries.</li> <li>-Our organization employees are readily accessible.</li> </ul> </li> <li>• <b>Cultural Resources:</b> <ul style="list-style-type: none"> <li>-Our organization members understand the importance of knowledge.</li> <li>-Our organization members are valued for their individual expertise.</li> <li>-Our organization members are encouraged to interact with other groups.</li> <li>-The benefits of sharing knowledge outweigh the costs.</li> <li>-Our organization members are encouraged to explore and experiment.</li> </ul> </li> <li>• <b>Human Resources:</b> <ul style="list-style-type: none"> <li>-Our organization members can understand not only their own tasks, but also others’ tasks.</li> <li>-Our organization members can make suggestion about others’ task.</li> <li>-Our organization members can communicate well not only with their department members, but also with other department members.</li> <li>-Our organization members are specialists in their own part.</li> </ul> </li> </ul> <p style="text-align: right;">Source: Adapted from (Attia and Salama, 2018).</p>
Service Quality	<ul style="list-style-type: none"> <li>-We can fulfill promises to our customers on time.</li> <li>-We can immediately respond to customer demands.</li> <li>-We can immediately improve services when they fail or are not perfect.</li> <li>-Compared with other companies in the same industry, we are equipped with excellent communication skills.</li> </ul>

	<p>-Compared with other companies in the same industry, we are equipped with professional knowledge and skills.</p> <p>-Compared with other companies in the same industry, we can provide customized services based on customers' demands.</p> <p>-Compared with other companies in the same industry, we can place ourselves in our customers' shoes.</p>
Source: Adapted from (Tseng, 2016).	

The survey was sent by email to over 300 managers and was followed up by a phone call to encourage the targeted managers to fill in the questionnaire and to answer their enquiries related to the questionnaire statements. A total of 85 valid questionnaires were returned with a response rate 27.9%.

## 5. Data analyses and results

### 5.1 Measurement model:

The suggested research model contains 27 items describing 5 latent variables including four exogenous variables and one endogenous variable. The collected data tested for reliability and validity using confirmatory factor analysis (CFA) to evaluate the fit between the measurement model and the collected data. To test the construct validity of measurement, the factor loading, reliability, and average variance extracted were calculated to estimate the relative amount of convergent validity among item measures. Table 2 shows that, composite reliabilities and Cronbach's alpha values exceed from ideal benchmark value of 0.7, as recommended by Fornell (1982). In addition, all average variance extracted ranging from 0.649 to 0.812 exceed the benchmark value of 0.5 which is generally accepted in the literature (Hair, 2010). This finding shows adequate convergent validity. Also, the survey items used in this study exhibited adequate discriminant validity.

Table 2. Assessment of the measurement  
RMSEA=0.095; Chi-square= 2.274; SRMR=0.075; NFI=0.916; NNFI=0.916; IFI=0.927; CFI=0.925.

Variable	Factor loading (.0.7)	Cronbach's alpha	Composite reliability (.0.7)	Average variance extracted (.0.5)
<b>Technical Resources</b>				
TR1	0.84	0.925	0.956	0.649
TR2	0.83			
TR3	0.78			
TR4	0.90			
TR5	0.88			
TR6	0.95			
<b>Structural Resources</b>				
SR1	0.86	0.912	0.932	0.812
SR2	0.91			
SR 3	0.82			
SR 4	0.93			
SR5	0.90			
<b>Cultural Resources</b>				
CR1	0.92	0.915	0.958	0.711
CR2	0.83			
CR3	0.86			
CR4	0.80			
CR5	0.81			
<b>Human Resources</b>				
HR1	0.86	0.920	0.950	0.772
HR2	0.82			
HR3	0.90			
HR4	0.90			

Service Quality				
SQ1	0.87	0.912	0.9.42	0.657
SQ2	0.92			
SQ3	0.79			
SQ4	0.89			
SQ6	0.83			
SQ7	0.85			

A confirmatory analysis was used to evaluate the fit between the measurement model and the collected data. The results of the confirmatory analysis for the study's five variables are shown in table (1) were: RMSEA=0.095; Chi-square= 2.274; SRMR=0.075; NFI=0.916; NNFI=0.916; IFI=0.927; CFI=0.925, which reflect a good fit between the data and the suggested measurement model.

Table 3. Correlation Analysis

Scale	Technical Resources	Structural Resources	Cultural Resources	Human Resources	Service Quality
Technical Resources	1				
	0.880**	1			
Structural Resources					
	0.903**	0.912**	1		
Cultural Resources					
Human Resources	0.864**	0.843**	0.859**	1	
Service Quality	0.810**	0.793**	0.814**	0.749**	1

\*\* Correlation is significant at 0.01 level (two-tailed)

## 5.2 Structural equation modelling results

The chi-square must be over 2.00 for the model to be accepted (Koufteros, 1999), and the chi-square value for the current research model is equal to 2.274. Moreover, the model NNFI value is 0.916, and the model CFI value is 0.925, indicating the validity of the suggested model according to Garver and Mentzer, (1999) and Koufteros, (1999). They also recommended that the value of NNFI and CFI must exceed 0.90 for the model to be accepted.

The results of the correlation analysis in table 3 show a positive relationships between the four independent variables and the dependent variable. In addition, figure 2 shows a positive and significant relationships between the four types of capabilities and service quality, with estimated ranged from 0.536 to 0.581  $p < 0.001$ , which support the acceptance of the four hypotheses.

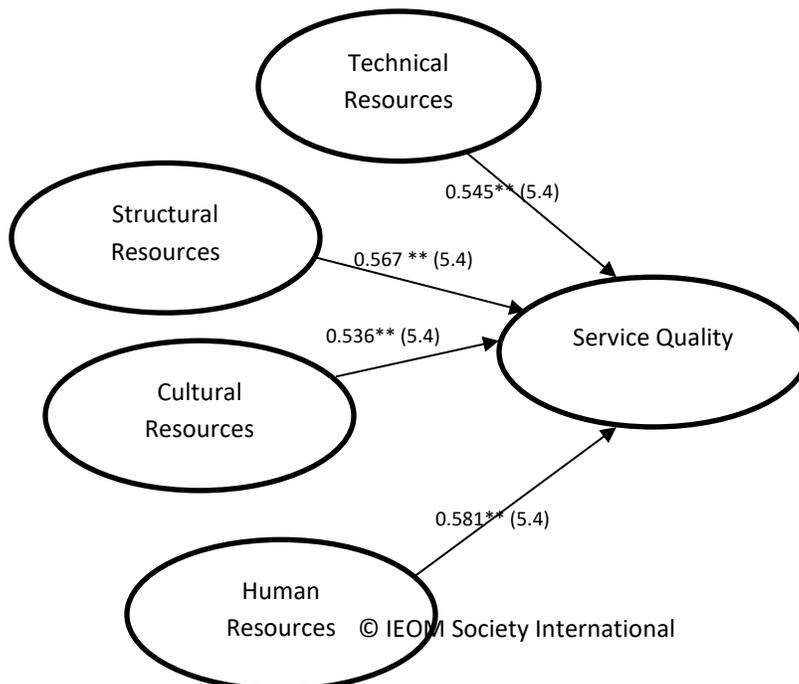


Figure 2. Structural relationship model with standardized coefficients and (t-value)

## **6. Discussion and Conclusions**

The results of current study contribute to the theory of knowledge management which considers knowledge management capabilities as a crucial organizational factors in the success of the organizations and enhancing their performance. Also, these results add to the organizational performance theory by clarifying the effect of implementing knowledge management capabilities on service quality. The study findings are important not only for their contribution to academic theories, but also for the practitioners who can use our results to identify and Implement knowledge management capabilities with a reasonable expectation based on empirical evidence that these initiatives will help in enhancing the service quality and overall performance of the companies.

The current study is one of the few ones in Saudi Arabia that aimed at evaluating the relation between knowledge management capabilities and service quality. Nevertheless, one of its points of weakness is its application to one company only. Hence, the hypotheses of the study must be reassessed and reapplied to different companies in the same sector and different industrial sectors to form a clear image of the nature of the relation between the variables of the study conducted in Saudi Arabia. In addition, this study has not taken into account external environmental variables such as laws and governmental legislations, which have an impact on the given relations between the variables of the study.

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