Knowledge management processes and sustainable competitive advantage: An empirical examination in private universities

Omar Rabeea Mahdi[a,*], Islam A. Nassar[a], Mahmoud Khalid Almsafir[b]

[a] College of Administrative Sciences, Applied Science University, 23East Al-Ekir, Bahrain
[b] Graduate Business School, College of Graduate Studies, University Tenaga Nasional (UNITEN), Jalan Ikram-Uniten, 43000 Kajang, Selangor, Malaysia

ARTICLE INFO

ABSTRACT

In modern times, it has come to the realization of organizations that acquiring knowledge and using it in an effective manner is the only way to have a sustainable competitive advantage (SCA) in the marketplace. This means that the resources of an organization must include knowledge, which should always be cared for and developed upon. When it comes to private colleges and universities, these are really just investments for the future businesspeople of the world. Through knowledge management processes (KMP), the knowledge they end up processing from these educational institutions will help them decide the direction in which they go in the future and how competitive they will be in the business world. But when it comes to knowledge-based view (KBV) and resource-based view (RBV), there is no clear explanation between them and how much the competitive advantage that KMP provides can be sustained. In this study, we will look at how and why SCA can be created by KMP from the educational environment's KBV and RBV. In order to achieve the objective, a hypothesis was created along with a quantitative survey method of design. The initiation of the structural equation modelling (SEM) method helped determine the relationship between the study variables through deductive approach. The respondents of this study are comprised of 525 academic leaders with varying positions from 44 private Iraqi universities. The results show a significant relationship between KMP and SCA. To attain a better SCA, private universities must generate knowledge, store knowledge, share knowledge and apply knowledge that is backed by identify of knowledge and formulating of its goals throughout every aspect of the organization. The research adds to the active group of knowledge that is currently available in the area of strategic knowledge management.

1. Introduction

Knowledge has been considered as a strategic resource, and as such, it needs to be managed to promote the competitive performance of the organization. One would therefore expect that for enterprises to be successful, they must exploit methodly their knowledge assets (Bolisani & Bratianu, 2017). In Iraq, the private universities like other organizations seek to survive and grow in the market, and are working to develop its strategic resources to ensure achievement of their goals. However, universities are increasingly facing new challenges, including financial and nonfinancial challenges, local and international competition, and the pressures of the diverse and changing labor market requirements (Almassoudi, 2007). In the changing world of today, private universities are influenced by some radical changes in the political, social, and economic aspects. They have embarked on a heated competition among themselves, between themselves and also with the public universities (Taka, 2010). Private universities are facing complex challenges in attaining their objectives as well as achieving sustainable competitive advantages. In addition, the matter becomes difficult because the changes in internal and external environment are fast, and moreover, private universities need to function with limited resources compare to its public counterparts (Arouet, 2009). The problem of study has been addressed two types of problems are theoretical and practical problem. The theoretical problem is has not paid enough attention of any the previous related theories to how to convert resources or skills into real capability, competency or core competency at a tactical level from a strategic perspective. It is because if there is no such conversion, there is no emergence of sustainable competitiveness (Grant, 1991; Hafeez, Zhang, & Malak, 2002; Lei, Hitt, & Bettis, 1996; Oliver, 1997; Petrick, Scherer, Brodzinski, Quinn, & Ainin, 1999). The practical problems in Iraqi private universities in relation to sustainable competitive advantage features are unclear. In Iraq, one of the challenges that its private universities have to face the need to determine the 'right' framework, through which competitive advantage and its

sustainability can be achieved (Almassoudi, 2007).

Based on this problem, many private universities began to exploit organizational resources to meet their strategic needs to build sustainable competitive advantage. Nowadays, organizations have realized that knowledge, its effective use, and the fast acquisition and utilization of new knowledge represent the only source of sustainable competitive advantage (Schiuma, Carlucci, & Lerro, 2012).

In the global economy of the 21st century, increasing the economic value of organizations and attaining SCA will be complex, challenging, and knowledge-based task (Halawi, Aronson, & McCarthy, 2005). RBV has become one of the best accepted strategic management theories and incorporating resources and capabilities as an essential and inescapable source to gaining sustainable competitive advantages, and consequently, higher levels of firm performances (Battisti & Deakins, 2017; Braganza, Brooks, Nepelski, Ali, & Moro, 2017; Ferreira & Fernandes, 2017). Thus, the SCA is likely going to have strategic capabilities and resources as its source (El Shafeey & Trott, 2014). To comprehend SCA sources, Barney (1991, 1995), Barney & Arikan, 2001, Barney and Clark (2007) supplied a theoretical structure of the firm's RBV. This theoretical structure contains 4 main elements for attaining SCA (El Shafeey & Trott, 2014). The firm RBV's first main element needs to start with these two suppositions: the resources of the firm could be immobile and heterogeneous, while under the assumption that a portion of these resources are expensive to duplicate or there isn't enough supply of them (Barney, 2007). The RBV's second main element is that a firm is incorporated with resources that are intangible and tangible which are managed by them to allow it to think and apply strategies created to enhance the firm's effectiveness (Barney & Clark, 2007). Assets that are tangible are not considered to be the basis of competitive advantage anymore. In the modern day business community, it is more significant to draw in intellectual capital (Halawi et al., 2005). The RBV's third main element is how they asserted that certain resources and skills critically factors into attaining SCA (Amit & Schoemaker, 1993; Barney, 1986; Mahoney & Pandian, 1992; Rumelt, 2003; Wernerfelt, 1984). The firm's RBV is a research flow that possesses three similar, but also different thought disciplines: the firm's RBV, the firm's view of dynamic capability and the firm's view of competence. There are a few scholars who believe these three views to be one thought discipline which all have the same hypothetical framework (El Shafeey & Trott, 2014). When it comes to resource-based theory, it doesn't exactly pertain to resources. Instead it concerns the attributes in which the resources need if they are a SCA source (Barney & Clark, 2007, p. 249–250). An argument by Barney and Clark (2007) is that not all the resources of a firm have sustained competitive advantage potential because different resource types can have varying competitive effects on the firms. For an organization to have this kind of potential, its resource needs to be comprised of 4 main attributes; (V) valuable, (R) rare, (I) imperfectly imitable, and (O) organization. The first letters of these four attributes create the VRIO structure. As for the fourth main element, competitive position is the way to maintain competitive advantage. In order for there to be competitive advantage in an organization, it needs to produce additional economic worth in its product market than the "breakeven" marginal competitor (Peteraf & Barney, 2003). The main theory behind competitive advantage has to do with calculating the amount of success and number of achievements compared to the organization's competitors. The amount of success can be determined in various ways, with the ability to create economic value being the main one. Economic value concerns the differences regarding the benefits that the purchaser perceives they'll get and the expense the organization endures to create their goods or services for the purchaser (Ong & Ismail, 2008). It was theorized by Porter (1985) that focusing too much on operational effectiveness in regards to strategic positioning allows there to be competition that is harmful. What operational effectiveness means is that an organization is more efficient in performing similar tasks than their competitors. However, strategic positioning is when an organization is more efficient in performing different tasks than their

competitors or similar tasks in a unique fashion (Porter, 1996). In the present, organizations need to focus on attaining a position of competitive advantage by growing the performance of the organization (Raduan, Jegak, Haslinda, & Alimin, 2009).

A quick and hard exchange of information is what our global and interlinked economy depends on to succeed. One source of competitive advantages that is sustainable by modern day business communities is managing knowledge (Holsapple & Singh, 2001). Knowledge management (KM) can be used to secure competitive edge. This kind of management involves the organization's existing knowledge, how the organization uses this knowledge and the speed in which the organization can learn new knowledge (Prusak, 1996). Stewart (1997) showed that KM is a modern day strategic weapon that is an organization's most precious and powerful resource (Stewart, 1997). Some argue that organizations can probably stay ahead in the competition if they can effectively manage knowledge capital (Hiebeler, 1996). Many empirical studies have consistently proven that KM can be used to attain competitiveness (Holsapple & Singh, 2001). It was indicated by Porter and Millar (1985) that the main source of competitive advantage is information. This is a statement which is consistent with the notion that successful KM can give an organization an edge against their competition (Porter & Millar, 1985). Although, information isn't the only thing that KM involves. If the emerging knowledge economy requires knowledge-based organizations to use KM as their main source of competitiveness, then the capabilities of KMP which make up these organizations' dynamic fabric are the main elements in establishing competitiveness (Holsapple & Singh, 2001). Academicians and practitioners have no doubts about KM's importance within an organization. The literature pertaining to KM has been enhanced greatly by two particular pieces of works: "The Knowledge-Creating Company" written by Nonaka and Takeuchi (1995) and "Know How Company" written by Sveiby and Lloyd (1989). The idea of "Working Knowledge" was first thought of by Davenport and Prusak (1998). This offered useful advice about applying the KM system and showed numerous KM case studies that were successful. From a practice perception, businesses are seeing the prominence of KM if they to persist competitive and grow. Consequently, several firms everywhere are starting to dynamically manage their knowledge and innovation. Many scholars have pointed out that knowledge management (KM) exploited significantly in organization's strategy. However, the question remains on why KM is not used more as a strategic tool, and why one cannot find a larger proliferation of successful KM programs in organizations (Bolisani & Bratianu, 2017). Fixed organizational knowledge can be managed through KM using a methodical approach which includes creating, configuring, organizing, retrieving, sharing, and assessing the knowledge assets of an enterprise (Hong, Kim, Kim, & Leem, 2008). According to Dyer and Nobeoka (2000), companies attempted to apply KM activities in an early adopting phase. These activities included documenting and recording all the processes of the business to acquire explicit knowledge as well as acquire tacit knowledge through intellectual discourse. KM infrastructures were starting to be established by companies which included the management of KM activities through a special unit and KM support processes Dyer and Nobeoka (2000). The definition of KM is basically to manage knowledge using a strategic and systematic method which begins from the discovery of the knowledge to the creation of additional knowledge that is new. In respect to the concept of knowledge creation, many organizations and institutions are increasingly concerned with the provision and the use of effective tools for knowledge creation. As a result, knowledge-intensive organizations spend more on knowledge creation tools (Kaba & Ramaiah, 2017). The tools allow academic institutions to connect faculty members, facilitate knowledge exchange, learning, and knowledge retention (Kaba & Ramaiah, 2017). This implies that the use of knowledge creation tools is a cornerstone for investigating knowledge creation which is vital to the improvement of KM within an organization (Kaba & Ramaiah, 2017). By using this knowledge, the intellectual assets of an organization can be used to

increase productivity, increase competitiveness and obtain new value (Choi, 2000). The KM was discussed from process capabilities perspective of knowledge identification (KI), knowledge goals formulating (KGF), knowledge generating (KG), knowledge storage (KS), knowledge sharing (KSH), and knowledge application (KA) (Mertins, Heisig, & Vorbeck, 2001; Heisig & Vorbeck, 2001). Therefore, this paper aim to examine how and why knowledge management processes can be used to create sustainable competitive advantage from the resource-based view (RBV) and knowledge-based view (KBV) of the academic environment.

2. Literature review

2.1. Knowledge management processes

The KMP occur naturally in an organization regardless whether a formal KM charter has been set in place (Wee & Chua, 2013).The significance of contemporary organizations using KMP is illustrated in academic literature publications (Daud, Fadzilah, & Yusoff, 2010). There are some authors of these publications who believe that it is vital for an organization to have the ability to create knowledge (Nonaka & Takeuchi, 1995; von Krogh, 1998). It was concluded by Bollinger and Smith (2001) that KM is both a process and a goal grouped together as one. They believed that KM's main objective is to benefit the organization by knowledge sharing as a goal and result. Control isn't the main strategic resource of KM's processes, but rather their collaboration and sharing of information. Academic scholars have realized that social activities make up KMP and give support to collecting knowledge and individual knowledge as well as the interaction between individuals (Alavi & Leidner, 2001; Lucas & Ogilvie, 2006). The social and human capital of knowledge resources are a contributing factor in which activities are performed. That is why the organization needs to decide on which activities will receive their support. They also need to decide on the proper organizational technology and variables that will allow them to do so (Okunoye & Bertaux, 2008). The basis of the KMP relies on the capabilities of an organization's members to bring more worth to their essential business processes by creating, communicating, coordinating, and codifying tactic and explicit knowledge provisions (Nonaka & Takeuchi, 1995). It was believed by Nonaka and Takeuchi (1995) that the stream of transitional knowledge starts with socialization and then continues to externalization, combination and then internalization. Raw experience is the starting point of transitional knowledge which leads into understanding, categorizing and lastly creating private mental models which surpass this experience and provides new knowledge. It was made clear by Tseng (2010) that there are three main components to KMP, with each one illustrating top management's role. The first component is how strategic development is formed by the information resources and relevant knowledge used in the KM strategy. The second component concerns the tactics used for effective KM to be implemented by senior management which will support the main strategic planning and decision making of the business. The last component is top management must remember that employees will often resist the changes which take place because of implementation. It takes time to notice the effectiveness of changes since KM is never something that is short term. The dynamic KMP are mutually dependent and highly entangled. Teams and individuals within an organization could be involved in numerous areas of knowledge processes in any part or at any place in time. The KMP's main focus should be to allow the stream of knowledge to travel between individuals and teams. The KM initiative's biggest obstacle is to make these streams possible so that as much knowledge as possible can be transferred (Sandhawalia & Dalcher, 2011). Also, KM is a recurring dynamic process which makes employees have to constantly connect with information and obtain new knowledge, and then apply that knowledge so they can improve their decision making while developing new knowledge and information in the process. After that, they will apply this newly obtained knowledge

to situations which are also new. The KMPs have three essential aspects to them; people must have knowledge, people must use that knowledge and people must possess the ability to know when to use that knowledge appropriately (Gandhi, 2004). There are some literary studies which imply that competitive advantage is sustained by the contributions of KMP. It is through KMP that new knowledge is constantly created by organizations while making it easy to share this knowledge within their environment and to apply the knowledge in a way that will allow them to create products or services which will increase their competitive advantage (Davenport & Prusak, 1998; Grant, 1996b). Organizations and specialists have varying viewpoints about KMP in regards to their number, classification and sequence, which rely on the organizations' different development, its level of maturity, the awareness of top management about the benefits and management of their knowledge and the significance in how this knowledge can be applied and used. Since the strategic resource of the future is knowledge, it is important that organizations fully comprehend all types of KMP. However, there is little consensus as to what KMP definitively constitute (Claver-Cortés, Zaragoza-Sáez, & Pertusa-Ortega, 2007). Based on previous reason and what has been commonly identified in the literature and for the purposes of this study, the KMP's Fraunhofer IPK Berlin model has been used in accordance to Mertins et al. (2001). "Knowledge management describes all methods, instruments, and tools in a holistic approach that contribute to the promotion of the core knowledge processes - to generate knowledge, to store knowledge, to distribute knowledge and to apply knowledge supported by the identification of knowledge and the definition of knowledge goals in all areas and levels of the organization" (Mertins et al., 2001, p. 3). The term "knowledge sharing process" has been adapted as a replacement of the term "knowledge distributing process" in this study. Scholars and researchers, such as Al-Alawi, Al-Marzooqi, and Mohammed (2007) and Supyuenyong, Islam, and Kulkarni (2009), have stressed that the knowledge sharing process is a crucial process. For KM strategies to succeed, it is stressed by this model that support must exist through mid-level managers up to the top-level managers.

2.1.1. Knowledge identification

Knowledge selection's first sub-process is KI. The demand for knowledge is identified by this sub-process and it figures out which knowledge is the correct knowledge. But before sharing or creating this knowledge, the identification of the need for knowledge must take place (Sun & Hao, 2006). The identification of knowledge has been defined by Heisig and Vorbeck (2001) as the essential foundation for each KM project. The starting place for knowledge is located externally and internally within the organization from customers, research facilities and suppliers. The importance of KI is believed by Davenport and Prusak (1998) to be an organization which relies on its culture, infrastructure and overall objectives to get things done. The needs of knowledge that come from within an organization by realizing and recognizing them is also referred to by KI (Coakes, 2003).

2.1.2. Knowledge goals formulating

The beginning of practical KM involves creating goals that are clear. This is important when selecting methods which are proper and for the ensuing evaluation and management of performance. The KGF was divided up by Heisig and Vorbeck (2001) into three goals: (clarity) short-term, (improve processes, easier predictions and decision making) medium-term and (market leadership and success, customer satisfaction and orientation) long term. In addition, the path for KMP is found by knowledge goals. These goals decide which level each capability should be constructed upon. A corporate culture that is sensitive to knowledge is created by normative knowledge goals. This is a culture in which creating and sharing knowledge develops the prerequisites for successful KM. Organizational core capabilities are defined by strategic knowledge goals and explain the knowledge that the organization will need in the future. These goals establish an attractive future portfolio of

competence and an addition of the usual planning processes of the organization. Strategic and normative knowledge goals are converted into action by operational knowledge goals (Leibold, Probst, & Gibbert, 2007; Probst & Romhardt, 1997).

2.1.3. Knowledge generating

Knowledge creation and acquisition is KG (Davenport & Prusak, 1998). The internal processes of generating, creating, building, constructing and developing knowledge is known as knowledge acquisition. Both terms are all about gaining useful and new ideas and insights (Daud & Yusuf, 2008). As for knowledge creation, this refers to the ability of an organization to create useful and new solutions and ideas in respect to different aspects of the activities within the organization, such as production creation, managerial practices and technological processes (Nonaka, 2007; Un & Cuervo-Cazurra, 2004). KG is explained by Mertins et al. (2001) as instruments and measures which encourage the development and acquirement of external methods and knowledge in order to extract knowledge that is tacit.

2.1.4. Knowledge storage

The KS can be defined as activities which include separating knowledge into varying categories, transferring knowledge, and saving knowledge in the database of an organization (Small & Sage, 2006). Expert systems' potential for storing knowledge was referred to by Heisig and Vorbeck (2001). The organizational memory's influence has been neglected many times in the past by numerous organizations. As a result, the increasing rate of employee turnover and outsourcing measures typically led to a decrease in the knowledge of an organization. In the future, knowledge needs to be saved and secured on an organization's various data carriers as well as given the right mechanisms for indexing in order to retrieve and access it (Sun & Hao, 2006).

2.1.5. Knowledge sharing

The KSH is defined as the level of intra-organizational cooperation along with the exchange of documents, ideas news, things learned and any other information that is relevant (Bontis & Serenko, 2009). After the identification of present knowledge or the creation of new knowledge, KSH is satisfied. KM's core process is considered to be this particular sub-process, since one of the main goals of KM practice and research is to encourage the stream of knowledge among members of an organization (Chua, 2004; Shin, 2004). By doing this, it adds more worth and develops new opportunities to sustain the competitive advantage of the organization (Supyuenyong et al., 2009). KSH is described by Bartol and Srivastava (2002) as a social exchange throughout the entire organization or department where employees give each other relevant information regarding the organization such as suggestions, expertise and ideas that each employee has. Explicit and tacit knowledge are both informally and formally shared between employees (Holste & Fields, 2010). The organizational and individual levels are where KSH occurs (Lin, 2007).

2.1.6. Knowledge application

After the available relevant knowledge has been distributed, the goal of knowledge is to apply it. New collective and individual learning processes are only allowed by the KA. New knowledge is then generated as a result. The main knowledge processes are then thought of as a closed cycle (Heisig & Vorbeck, 2001). This is the stage where knowledge users can put their knowledge together and practice it for real by putting together the documents of published knowledge. In this method, information is given in regards to how the strategy of KM should be altered (Lee & Lu, 2010).

3. Sustainable competitive advantage

It was stated by Besanko, Dranove, Shanley, and Schaefer (2000) that a firm receives a competitive advantage in the marketplace when

their rate of economic profit is higher than the typical rate of their competitors. Competitive advantage was defined by Barney and Hesterly (2009) as the ability for a firm to generate a higher amount of economic worth than the economic worth of their competitors. According to Stevenson (2009), a firm's success in using the resources of their organization to meet the demands of their customers in comparison to their competitors is how you measure competitive advantage. In the slow growth and competitive markets, strategic senior managers put their main focus on attaining a competitive advantage. This is the characterization of numerous modern day businesses and for the last 20 years, the main concern of practitioners and scholars has been the causes of competitive advantage (Barney, 1991, 1995; Barney, 2007; Cockburn, Henderson, & Stern, 2000; Grant, 1996a; Peteraf, 1993; Porter & Kramer, 2006; Prahalad & Hamel, 1990). It is greatly known that the majority of organizations need to realize achieving competitive advantages across sectors will be their most challenging task in the new century. With the fierce increase in global competition, achieving SCA and sustaining competitive advantage gains more focus. It was acknowledged by Barney (1991) that an organization can claim to have a competitive advantage when they start executing a strategy that will create value for them which is not being used by any of their rivals. It can be confirmed that an organization is using a SCA when other organizations cannot duplicate the strategy's benefits for themselves. There are two types of competitive advantage, according to Barney and Hesterly (2009). These types are sustainable and temporary. They stated that high profits are the usual result of competitive advantage. However, competition is often attracted from high profits and this competition will reduce the amount of time that competition advantage will last. This is why competitive advantage is only temporary for most organizations.

Still, it is possible to sustain competitive advantage if an organization's rivals cannot duplicate the foundation of the advantage. Also, SCA was referred to by Reed and Defillippi (1990) as developing walls which make it difficult to duplicate the success of a firm. "Competitive advantage is at the heart of a firm's performance" (Porter, 1985, p. 15), which means a firm should prevent themselves from being tainted by incorporating new technologies, core competencies and skills into their organization. It was discovered by Halawi et al. (2005) that SCA is not dependent on capital and physical assets like it used to be. Now it is more effective in focusing on intellectual capital instead.

Litterateur review shows many different SCA definitions. For example, superior resources and skills were seen by Day and Wensley (1988) as possible advantage sources. In analyzing methods of attaining SCA, the perspectives of customer and competitor need to be thought of. In addition, core competencies determine the results of SCA and so firms need to gather their skills and resources into abilities which will let them adjust fast to opportunities that are changing. According to Barney (1991), there are four indicators regarding the possibilities for the resources of a firm to create SCA. These indicators are VRIN: value, rareness, inability to be duplicated and not substitutable. Barney and Clark (2007) and Barney (1995) created SCA's definition for this study; the resources, core competencies, competencies, and capabilities of an organization can be seriously heterogeneous and immobile. It all depends on the four practical indicators: (V) value, (R) rareness, (I) inability to be duplicated and (O) organized to detain and utilize their value.

3.1. Process of sustainable competitive advantage

With all of this study's definitions, four important points can be looked at closely; subjects, media, objective, and updating. The basic principle of SCA and its process can be construed from these four elements (Mahdi & Almsafir, 2014). The SCA is a dynamic process which can tolerate present competitive demands while not having to risk the organization's ability to satisfy their competitive needs in the future. This kind of process turns organizations into a concept that is dynamic

(Chaharbaghi & Lynch, 1999).

3.1.1. Subject

The subject of the SCA process is its first element. *Resources* (*RES*) are SCA subjects. Resources are an analytical component regarding the company's most basic elements, and are obvious objects to analyze because they are the inputs into an organization's process of business value (Eisenhardt & Santos, 2000; Grant, 1991; Helfat & Peteraf, 2003). What this means is the resources of an organization's value chain are their inputs (Javidan, 1998). Also, resources that are rare, valuable, organized and expensive to imitate are labelled as SCA sources (Barney & Clark, 2007). Experientially, resources were defined by Ljungquist (2008) as using core competencies, which are both connected since the value process involves using core competencies. The RBV claims that an organization is an incorporated group of resources that are intangible and tangible. These resources are controlled by the organization which allows it to think of and apply strategies created for the purpose of improving its effectiveness and efficiency. The degree of a firm's resources depends on tangibility. The more tangible resources are often physical capital resources (physical technology, equipment, plants, geographical location) and financial capital resources (debt capital, equity capital). The less tangible resources are often organizational capital resources (firm culture, formal planning, informal planning, structure of formal reporting, coordinating and controlling systems, and relationships between groups of the firm and between people of the firm and the firm itself), and human capital resources (training, judgment, experience, single individual insights and intelligence) (Barney & Clark, 2007).

3.1.2. Media

The media is the SCA process's second element. The media is a sub process for altering the skills and resources of the subjects into core competencies, competencies and capabilities. The *capabilities* (*CAP*) represent the ability of a corporation to use its resources effectively. This is made up of a sequence of business routines and processes which controls the relations between the resources (Javidan, 1998). The concept of capability can be confusing to some because it has two basic definitions. The first meaning is that it has the ability to use its resources to conduct certain activities (Hafeez et al., 2002) and the second meaning is the management of various processes, organizational memory and tacit knowledge (Ljungquist, 2008). As far as innovation goes, the measure that is used the most is the introduction of a new product or service that the organization is providing. These kinds of capabilities could be experiential knowledge, value analysis, management information systems (MIS), research and development (R&D), marketing, performance management, production/service, ISO certification and organizational design (Hafeez et al., 2002).

As for *competencies* (*COM*), they are the coordination and cross-functional incorporation of capabilities (Javidan, 1998). In a company with multiple businesses, competencies would be defined as a group of skills that dwell in strategic units of business. Competencies are the product of the integration of the functional capabilities of strategic business units. Here is an example: the research and development department of a firm form competency through the management of various capabilities like product development among third party partners, research, experimentation, innovation, and the creation or adoption of individualized solutions for customers (Hafeez et al., 2002). Academic experts differentiate between core distinctive competence and distinctive competence (Eden & Ackermann, 2000). A company's great strength is their distinctive competence because it is hard to duplicate and is a great way for them to create profits that are sustainable. Core distinctive competence is a type of competence which mainly pushes the system of aspirations.

The *core competence* (*CC*) is the most well-known concept of strategic management. Prahalad and Hamel (1990) used the phrase "core competence" in order to handle the capabilities of firms that were diversified from a perspective based on competence. These core competencies were identified by making employees identify them from assessing and scanning three associated concepts: competencies, company-critical resources and capabilities (Prahalad & Hamel, 1990). These concepts are usually merged in the process of identification, both empirically and conceptually. This is what happens in the research of strategic management when the concepts are interchangeably defined (Ljungquist, 2008). Much of the research into competitive advantage will zero in on core competencies as that advantage's main source. Core competencies can be defined as a set of competencies and areas of knowledge and skills which get exchanged throughout strategic units of business, and are the result of the integration of the competencies of strategic business units which exist throughout the company (Javidan, 1998). According to Prahalad and Hamel (1990), core competence is an organization's collective learning, particularly in regards to the coordination of different skills and the incorporation of multiple flow technology systems. But the most widely accepted definition of core competence is a set of technologies and skills which allow an organization to provide their customers with an advantage. Core competencies was referred to by Hafeez et al. (2002) as being strategically and naturally dynamic and flexible, which means it is an important part of the processes of competence building and organization learning.

3.1.3. Objective

Objective is the SCA process's third element and a sub process which should be better or different than competitors so they cannot duplicate it. Despite having static and mixed resources, core competencies, competencies and capabilities are crucial for attaining a competitive advantage. The firm just wanting these resources to be sustained alone is not enough. When considering the RBV, the VRIN structure which examines whether resources are rare, costly to duplicate, valuable and unable to substitute were identified by Barney (1991). The competitive advantages are sustained in the core competencies, competencies, resources and capabilities that all contain characteristics of VRIN. Barney (1995) enhanced this structure later on to VRIO from VRIN by implementing this question: "Is a company organized to exploit these resources?" The structure of the VRIO is merely an altered version of the RBV's theoretical framework taken up by Rothaermel (2013, p. 91) and according to Barney and Clark (2007).

3.1.4. Updating

Consistently updating is the SCA process's fourth element. The idea here is to look over the SCA like a dynamic process while taking a strategic view of it. According to Czinkota and Kotabe (2000) and Pearce and Robinson (1995), there are sustainable strategies that make up SCA which differentiate the organization from their competition. Some examples of this include price strategy, communication strategy, strategy structure fit, or support between areas that are functional. It was suggested by Hitt, Ireland, and Hoskisson (2010) that enterprises need to be able to tolerate a disruptive environment and develop competitive advantage that is new if they want to have SCA. The process of SCA was described by Jiajia (2007) as a continuum. That is, before the decline of an enterprise's current competitive advantage, they should achieve a new one. Competitive advantage is built by enterprises as a mutual connection continuum and creates an uneven path that is continuous.

4. Development of hypotheses

The study suggested that an appropriate theoretical framework is needed that should be developed to reflect the environment within which the study was conducted. The theoretical framework in this study emphasizes the important of the influence of KMP in SCA. Based on the theoretical framework, the hypothesis was developed to examine the relationship between KMP and SCA among private universities in Iraq. The relationship between knowledge and strategy appeared in
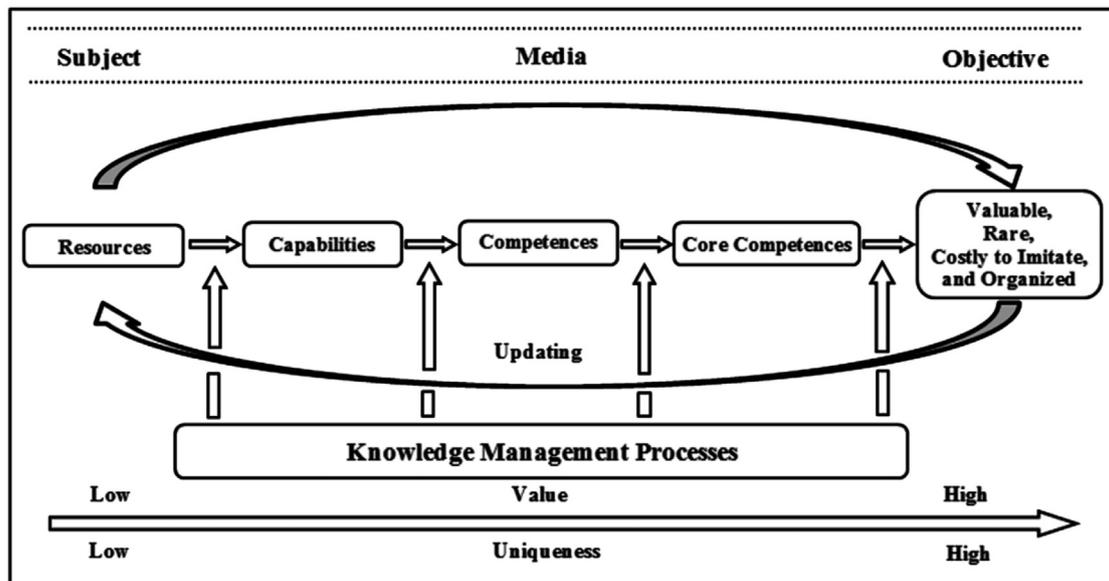
Fig. 1. Theoretical framework.

managerial literature decades ago (Fig. 1).

The idea that knowledge should be explicitly seen as a critical resource for competitiveness is not new (Bolisani & Bratianu, 2017). There is a lot of uncertainty that organizations have to deal with in the competitive environment of today because of changes that occur rapidly in the environment. The main objective of an organization to handle these changes is sustainability. Knowledge is the main source of competitive advantage within an organization because it provides new opportunities to them and it allows them to resolve problems. Also, organizations which create new KMP are constantly competing with each other to develop, hand out and convert knowledge into services and products. This turns KMP into both a resource for competitive advantage and a sustainable resource as well (Mahdi, Almsafir, & Yao, 2011; Nonaka & Takeuchi, 1995). It was believed by Teece (1998) that knowledge creates the foundation for SCA and that sustainability comes from the limitations of time, which rivals face when learning information already known by other organizations. The most strategic resource is knowledge (Grant, 1996a). The KMP of obtaining, creating, sharing, and using knowledge are highly critical strategic capabilities for constructing and maintaining competitive advantage in an organization (Zack, 1999). If an organization were to have better knowledge than their rivals then they could mix conventional capabilities and resources in unique and original ways, which would result in giving their customers better value than their competitors (Teece, Pisano, & Shuen, 1997). An organization which possesses intellectual resources that are superior can comprehend the best way to exploit and create their conventional resources in a better way than their competitors. It doesn't even matter if these are unique conventional resources either. According to Zack (1999), the success of an organization is dependent on the creating capabilities which can tolerate change and then learn quickly from it. This success comes from the pace in which KMP creates, captures, and distributes knowledge in order to create capabilities which their rivals cannot duplicate. The complexity of imitating competencies from knowledge, attitudes and skills which make up KMP was noted by Mcevily and Zaheer (1999). It was also pointed out by Leitch and Rosen (2001) that incorporated KMP as it pertains to product knowledge providing an organization with competitive advantage should increase teamwork between every individual. By doing this, KM can successfully make it easier to have the right person receive the highest quality knowledge at the most appropriate time. Also, the outcome of competitive advantage coming from knowledge transfer processes and strategic knowledge were analyzed by Bou-Llusar and

Segarra-Ciprés (2006). One problem they found in KBV was the source of competitive advantage being delimited; knowledge vs. The KMP of gaining, moving, and creation. Decisions that are optimal which come from skills and KI are the result of SCA. Knowledge can be identified by focusing on what was learned from knowing how to apply KM to guarantee competitive advantage takes place. From understanding what caused failures to take place in the past, an organization will be able to locate the right knowledge that needs to be obtained or created to satisfy their needs in the future (Mertins et al., 2001). A strategy is realized by the KI that will develop and sustain a connection between competencies, resources, and missions (Hitt, Haynes, & Serpa, 2010; Ireland & Hitt, 2005). Therefore, the main focus of an organization needs to be in its capability of knowledge identification in KMPs which will give them the most competitive advantages in the long run.

Furthermore, it is necessary to have KGF in order to provide the KMP with the primary direction of an organization or individual (Leibold et al., 2007; Mertins et al., 2001; Probst & Romhardt, 1997). KGF centres on objectives like improving processes, competitiveness and clarity in organizations that like to practice business processes which generate its value (Heisig & Vorbeck, 2001). Also, it was pointed out by Von Krogh (1998) that a source of SCA is the required care in KG. When new knowledge is created, value is created as well. Prahalad and Hamel (1990) mentioned from a strategic management viewpoint that an organization's real core competence, which generates SCA, relies heavily on the capability of management to create organizational knowledge that is relevant. Similarly, an organization's capability to restore or renew its capability depends on the organization's ability to create competency that is new by obtaining knowledge that is also new (Sharma & Goswami, 2009).

Individual access and organizational memory to knowledge that is explicit and tacit is supported by retrieval and KS (Karadsheh, Mansour, Alhawari, Azar, & Naser, 2009). Grant (1996a) said the nature of knowledge storage and attainment within an organization is determined by how much they are trending towards organizational capability. If knowledge that is unique remains in specialized forms in storage with individual members of an organization, then the incorporation of each person's specialized knowledge makes up the foundation of organizational capability. The circumstances in which KSH and the creation could factor into helping the competitive advantage of an organization were investigated empirically by McEvily and Chakravarthy (2002). Competitive positioning may be improved by the KM if they were to seize and share valuable knowledge in situations

where innovating operations require leveraging knowledge (Shin, 2004). KM helps identify situations, from the KBV and RBV, for attaining knowledge-sharing benefits (Barney, 1991; Kogut & Zander, 1992; Peteraf, 1993; Wernerfelt, 1984). Furthermore, it was stated by Lin (2007) that a likely foundation for increased productivity is KSH and that it can also help keep intellectual capital, despite whether or not an organization loses employees; it is necessary for business that creates value added. For that reason, a big focusing point in the strategic management field is KSH, which Grant (1996b) also mentioned. KSH is viewed by organizations as one of their most important strategic resources and one of their main sources of creating value (Nonaka, 1991; Spender & Grant, 1996; Teece et al., 1997). As a result, it is fundamental for KSH to be a process centred on knowledge which allows employees to make contributions of their own to innovation, KA and an organization's entire competitive advantage (Wang & Noe, 2010). Sooner or later, a crucial characteristic of the firms' KBV is that the competitive advantage's source remains in the KA instead of in knowledge. It was verified by Alavi and Leidner (2001) that KBV makes the assumption that tangible resources which provide services rely on the method they are applied and combined; this coincides with the one of the firm's know-how functions (i.e., knowledge). The text makes a reference to the truth that a well-crafted KMP can help achieve SCA. The following is a formulated hypothesis which is devised to recognize the connection between SCA and KMP:

H. knowledge management processes have a significant relationship with sustainable competitive advantage.

5. Study method

A quantitative survey design methodology was used to examine the relationship between KMP and SCA. Choosing the right research design required this study to implement various methods throughout the pilot study including sampling, probability and collaboration with many private universities' academic leaders. This study applied structured survey questions that allowed for the collection of data that is easier to quantify as the same questions were asked of all respondents. The standardization of the questions posed to respondents eliminates bias (Alreck & Settle, 2004). The use of a survey method was believed to help the researcher to obtain a sufficient number of respondents within the budget and resource constraints and reduced non-response bias. The survey questionnaire consists of four sections. Section A includes all demographic profile questions, section B comprises questions on KMP and section C contains questions on SCA. The finalized questionnaire was incorporated with a cover letter containing a brief statement of the purpose of this study, together with a statement of confidentiality and anonymity regarding the survey to establish trust between the respondents and the researcher.

A cross-sectional study was picked in this study as the horizon of time research. The statistical analysis of data that was collected had SEM used on it from this study. The interactions between KMP and SCA were analyzed by the use of SEM. The analysis of moments structures (AMOS) software (version 21) and the statistical package for the social sciences (SPSS) software (version 21) were used when analyzing and entering the data. The assessment of those participating was part of the screening procedures and data preparation. Factor analyses tests were implemented in the preliminary analysis of this study to establish the goodness of data. The single method used in dealing with missing data in AMOS represents a direct approach based on full-information maximum likelihood estimation (MLE). It uses for determining parameter estimates which have been found to have the least bias. The maximum likelihood approach is considered to be theoretically-based, and has been shown to offer several advantages over the other methods (Byrne, 2001). That way, confirmation can be made that each item is added to similar variables.

The Iraqi private higher education of Ministry of Higher Education

and Scientific Research (MOHESR) was involved in this study. Specifically, this population consisted of 44 private universities in Iraq that were first established between 1988 and 2013 (MOHESR, 2014). The organization is this study's unit of analysis. Because of the few number of private universities, the census method was implemented. Based on this method, the 44 private universities used in this study were adequate as a sample for this study. The respondents of the current study are academic leaders with leadership positions in high organizational levels of a private university. There were a total of 540 questionnaires given out, with 462 of those being collected. Out of those 462, 418 usable questionnaires were used and 44 (8%) cases provided incomplete questionnaires were dropped; thus the response rate of (418/540) 100 = 77%. The missing data include 11 cases deleted from the dataset for processing the missing data. In addition, 13 cases are deleted from the dataset for processing the outlier. Thus, the remaining data are 394 cases. The most important consequence of a low response rate is the non-response bias, caused by people refusing to participate. This non-response bias can be reduced through the implementation of a pilot study (Alreck & Settle, 2004), which is useful in helping to provide indications of the direction of the bias. However, in this study, the response rate was sufficient. This study's data collection method involved self-administered questionnaires that were both unsupervised and supervised.

The supervised self-administered questionnaire used directly for some strategic leadership chancellors, vice chancellors, deans, deputy deans, heads of departments, heads of division and heads of scientific centres in the presence of a surveyor face-to-face. The unsupervised self-administered questionnaires were hand delivered to the colleges of the sample private universities, by the attention of the chancellors, vice chancellors or deans. A cover letter was attached to the questionnaire inviting respondents to participate in the survey and to explain its purpose. During college deliveries, the researcher clearly explained the objective of the study, the expected time needed to complete the survey questions and why the particular respondent had been chosen to participate in the survey. These meetings provided the opportunity for the researcher to gain the consent of respondents. The questionnaires were then left for those respondents who agreed to participate in the survey, and arrangements were made for the researcher to collect the completed questionnaires at a later date. In the same context, the unsupervised self-administered questionnaires were sent to respondents in a wide geographical area by mailed surveys. Formerly created multi-item scales were used to operationalize all theoretical variables. They were also operationalized from theoretical concepts discovered from research that was related.

6. Measurements of study

Many studies have talked about KMP. They split up KMP into many processes. KM comes from a management theory which uses a process-based view, particularly in the decision making of what organizations need to manage (Lee & Lee, 2007). This means that KMP is made up of all the tools, instruments and methods of a holistic approach which helps support core knowledge processes; which are the generation of knowledge, storing knowledge, sharing knowledge and applying knowledge which comes from identifying knowledge and defining knowledge objectives throughout every level and area of an organization (Heisig & Vorbeck, 2001; Mertins et al., 2001). Therefore, KMP can be measured by categorizing it into five different constructs: KA, KSH, KS, KI and KGF. The KMP variable measured in this study with the use of 42 items created from the questions of the survey. KI can be measured using 7 items. KGF can be measured in 8 items which include 3 short-term items (clarity), 2 long-term items (competiveness), and 3 medium-term items (important of processes). KG can be measured with 7 items, KS can be measured with 6 items, KSH can be measured with 6 items as well, and KA can be measured with 8 items. A five-point Likert scale was used to measure every KMP construct in the current study.

Heisig and Vorbeck (2001) developed and validated the KMP measurement that the study used.

The SCA can be measured using four construct categories: CC., COM., CAP., and RES. There are 16 items used to measure SCA in this study; each construct having 4 items implemented to create the measurement of SCA which comes from Wernerfelt (1984), Prahalad and Hamel (1990), Barney (1991, 1995), Teece et al. (1997), Sanchez and Heene (1997), Javidan (1998), Mcevily and Zaheer (1999), Hafeez et al. (2002), Sher and Lee (2004), Sanchez (2004), Khandekar and Sharma (2005), and Ljungquist (2008). The RBV shows that capabilities, heterogeneous resources, immobile resources, core competencies and competencies have to be (V) valuable, (R) rare, (I) imperfectly imitable, and (N) non-substitutable; all referred to as the VRIN structure analysis Barney (1995). (Barney, 1991) originally developed the tool and said that in order for a firm to become a source of SCA, the core competencies, competencies, capabilities and resources of a firm must possess these four attributes: (V) valuable, (R) rare, (I) imperfectly imitable and (O) organization; also called the VRIO structure. It is not enough to just have useful resources. Capabilities must be possessed which allow these resources to be used and integrated (Barney & Wright, 1998; Newbert, 2008). Therefore, it is possible to view the "O" in VRIO as a capability by the method in which organizations manage a package of resources (Cardeal & António, 2012). Based on the RBV (Barney, 1991, 1995; Wernerfelt, 1984), competence-based perspective (Prahalad & Hamel, 1990; Sanchez, 2004; Sanchez & Heene, 1997), and dynamic capability-based approach (Teece et al., 1997), the core competencies, capabilities and resources which satisfy each of the four requirements could result in competitive advantage being sustained in the organization. According to Barney (1995), the SCA was measured by the items and constructs that were created based on the RBV's VRIO framework of the firm. The subjective constructs of the SCA had been measured based on the perspectives of the respondents using a 5-point Likert scale. It was asked of each respondent to give a rating to their universities on SCA measures in similar academic environment in comparison to their main competitors. Each of these respondents was considered to be an academic leader who worked within a high level of an organization and had a leadership position.

The survey questionnaire's reliability in SEM as well as the Cronbach's alpha can be determined by using (AVE) average variance extracted and (CR) composite reliability or construct (Awang, 2012; Fornell & Larcker, 1981). In addition, this study's survey questions followed 3 validity types; construct validity, content validity, and criterion validity, as stated by DeVellis (1991), Holmbeck (1997), Malhotra (1997), Punch (2005), and Zikmund, Babin, Carr, and Griffin (2013). Usually, validity in the construct of SEM focuses on the level in which information shows signs of discriminant validity and convergent validity (Byrne, 2010; Hair, Black, Babin, & Anderson, 2010; Kline, 2011).

7. Results

In Iraq, there were 44 private universities in total between the years 1988 and 2013. This sample study picked 44 private universities in total that are based in Iraq between the years 1988 and 2013. There are 540 academic leaders from Iraqi private universities who received questionnaires. Out of the 540 questionnaires given out, 462 of them were received. Once outliers, partially completed questionnaires and missing data were excluded from the count, 394 of them were left. Also, 85% of these respondents were female and 15% were male. The following are the varying age groups of the respondents who received the questionnaire: 31–35 years of age and 26–30 years of age accounted for 1% of the respondents, 36–40 years of age accounted for 9%, 41–45 years was 31%, and over 45-years-old was 58%. As for leaders with a Ph.D. educational level, 100% of them had this. As far as the positions of the various leaders: 6 of them were chancellors (2%), 12

were vice chancellor (3%), 58 were deans (15%), 111 were deputy deans (28%), 198 were heads of department (50%), 4 were heads of divisions (1%), and 5 were centre heads (1%). As for as their work history, 7 of the leaders had under five years of experience (2%), 42 of the leaders had 5–10 years of experience (11%), 160 of the leaders had 11–15 years of experience (41%), and 185 of them had over 15 years of experience (47%).

7.1. Goodness of measures

A preliminary analysis consists of reliability tests and factor analyses to establish the quality of information. The measures of reliability illustrate that this study's alpha coefficient of Cronbach for KMP is 0.98 with 42 items and for SCA is 0.93 with 16 items. The closer the Cronbach's alpha is to 1, the higher the internal consistency reliability (Sekaran, 2003).Cronbach's alpha readings of suitable values over 0.70 are shown in each variable (Hair, Black, Barry, Anderson, & Tatham, 2006). It shows all of this study's variables are dependable and suitable for using in more analyses. Flynn, Schroeder, and Sakakibara (1994) argued that a Cronbach's alpha of 0.60 and above was considered an effective reliability for judging a scale. Although there is no definite value for evaluating the reliability of a measure, the rule of thumb is that an alpha coefficient above 0.70 signifies high reliability (Hair et al., 2006). The greater the random error means the lower the reliability (Alreck & Settle, 2004). Poor reliability can be a result of various problems such as contestable instrument items, researcher bias, respondent bias and unreliable subjects. The size of this coefficient depends on the average correlation among items and the number of items. If the value is low, dropping items that do not contribute significantly to the average correlation can increase the value of alpha and the reliability of the measure (Carmines & Zeller, 1979). Furthermore in SEM, along with the Cronbach's alpha, the reliability of the survey questionnaire could be measured by using construct or composite reliability (CR) and average variance extracted (AVE) (Awang, 2012; Fornell & Larcker, 1981).

The factor-analysis of the 42 items was done to determine KMP's exogenous variable. Six factors shown in the results were loaded and only 35 items were confirmed to be assembled in this variable. Seven response items, KSH6, KSH5, KSH2, KG3, KG2, KG1, and KGF8, < 0.50 to the load factor (Hair et al., 2010). Therefore, the conclusion of the study is that each construct is valid. The results of the SCA factor analysis illustrated that out of the variable's 16 items, 4 factors taken. This shows the overall correlations' significance in the correlation matrix and shows that the SCA endogenous variable is loaded with all 16 response items. Therefore, it can be concluded in the study that there is validity in all constructs.

7.2. Correlation analysis among variables

Before performing statistical analyses in detail, the computation of descriptive statistics takes place for all data. In Table 1, there is the computation of maximum values, minimum values, standard deviation and the mean. KMP's mean value is 3.61 and the SCA mean value is 3.53. KMP's standard deviation value is 0.72 and the value for SCA is 0.77. It is portrayed by the maximum value and minimum value that all items studied fall within 1 to 5 on the Likert scale, which was used by the questionnaire. Table 4 also presents Cronbach's alpha and the coefficient correlation results for each measure. The coefficient correlation of the Pearson product moment is utilized to describe the connection between each variable in the study. The results of the correlation show that the connection between SCA's endogenous variable and KMP's exogenous variable is a positive important connection with $r = 0.67$, $p < .01$. The coefficient correlation value is under 0.85; this illustrates the study variables have no multicollinearity (Awang, 2012; Bryman & Bell, 2012).

Table 1
Inter-correlation coefficient and Cronbach's alpha.

Variables	Mean	Minimum	Maximum	Std. deviation	1	2
Knowledge management processes (KMP)	3.61	1.94	4.89	0.72	(0.98)	
Sustainable competitive advantage (SCA)	3.53	1.56	4.94	0.73	0.67[a]	(0.93)

Cronbach's alpha coefficient is shown in brackets in the diagonal parenthesis.

[a] There is significant correlation at the 0.01 level (2-tailed).

7.3. Measurement model

Mainly, the goodness of fit index showed there was unacceptable goodness of fit with the hypothesized variables model. In order for this model to be at a good fit level, the measurement and CFA model were carried out. Two groups were used to conduct the CFA in order to evaluate the measurement model's unidimensionality for every measurement model. Also, it was carried out to evaluate the measures' psychometric properties by analyzing the discriminant and convergent validity as well as the measures' reliability properties in order to recognize the right fit and internal consistency of the items of the scale (Hair et al., 2010). The second order construct is the variable of KMP which contains 6 exogenous first order latent constructs. Also, 35 items are confined to the KMP variable when CFA is carried out. The description of the exogenous constructs' measurement outcome is supported by the revised model of attaining a model fit that is made up of 35 items. The CFA shows that 9 items (KA8, KA7, KA5, KA1, KS5, KS4, KS3, KGF7, and KI3) are eliminated from the revised model and 26 items are controlled as the construct of KMP. Furthermore, free parameter estimates of set e10, e8, e6 and e5 are there to figure out KGF4 and KGF2, which are redundant items. Each of the factors standardized regression weight (SRW) of the latent to observed variable ought to be ($\geq$0.50) for sufficient individual item reliability (Byrne, 2010; Hair et al., 2010), allowing convergent validity to be supported (Bagozzi & Yi, 1988). The SRW of values over 0.50 is between 0.52 and 0.94, and has statistical significant. The squared multiple correlations (SMC) illustrate the contribution of each item to the variable should be ($\geq$0.10) (Falk & Miller, 1992), which goes from a low value like 0.27 to a high value like 0.89, and this can be seen as significant in conclusion. The measurement model's data is adequately shown in the model fit index. The Chi-square was 541.58 at *p* value = .000 < .001. Although the Chi-square goodness of fit is still significant due to large sample size (N = 394). Jöreskog and Sörbom (1993) and Hair et al. (2010) stated the absolute fit index of minimum discrepancy Chi-square can be ignored by the researcher if the gathered sample size is > 200 for the study. The df had a result of 291 $\geq$ 0.The Chi-square/df was 1.86 under 5.0. The CFI and GFI values were 0.97 and 0.90, respectively; this put them just over the 0.90 cut-off point. The RMSEA was 0.05 less than threshold value 0.08. According to Hair et al. (2010), this shows that every construct adapted to the construct validity test. Furthermore, there are sufficient levels found in all the other fit indexes which mean the KMP variable has a good model fit. In conclusion, the study shows validity in the response items; first order construct and second order construct (see Fig. 2a).

As shown in Fig. 2b, the SCA's endogenous variable had 16 items constrained to it that had CFA performed. The second order construct is the endogenous variable and has 4 first order latent constructs such as CC., COM., CAP., and RES. The CFA shows the SRW was higher than the 0.50 cut-off point for SCA values response items that have 16 items, ranging between 0.53 and 0.90. Sufficient individual item reliability is

statistically significant like Byrne (2010) and Hair et al. (2010) recommended, which gives convergent validity support (Bagozzi & Yi, 1988). As a result, the SCA model did not have any items removed because the factor loading was inadequate. Falk and Miller (1992) recommended the SMC results of ($\geq$0.10), which ranged between 0.28 and 0.77 and were found to be significant. The measurement model's data fit is shown by the model fit index as fitting sufficiently. The Chi-square had a value of 136.21, based on *p* value = .009. The df had a value of 100 $\geq$ 0. As for the Chi-square/df, it was 1.36 under 5.0. The CFI and GFI values were 0.99 and 0.96 respectively, and reached higher than the 0.90 cut-off point. The 0.03 RMSEA was under the 0.08 cut-off value as well. According to Hair et al. (2010), this shows the construct validity test has all constructs adapting to it. All the measurement model's measures fall within proper levels, which means the data superbly fits the model and a good model fit has been seen of the SCA variable. In conclusion, the study shows the validity of the response items, second order construct and first order construct.

7.4. Composite reliability and convergent validity

Internal reliability, average variance extracted (AVE), and construct or composite reliability (CR) was used in a reliability assessment of a measurement model (Awang, 2012; Fornell & Larcker, 1981). For each measurement model, validity was analyzed by means of convergent validity, discriminant validity and construct validity (Byrne, 2010; Hair et al., 2010; Kline, 2011). In Table 2 it shows the convergent validity and composite reliability of endogenous variables and exogenous variables. According to Bagozzi and Yi (1988), latent variables' CR pertains to values > 0.60, and this proves the CR is sufficient. AVE can also be used to verify convergent validity. The AVE value was higher than the 0.50 cut-off point, which means Hair et al.'s (2006) great convergent validity is a value that is recommended. What this means is all constructs make up over 50% of its items' variance.

It is shown in Table 3 the outcome of the AVE square root and how it supports the constructs' discriminant validity. The square root of AVE is made up of the diagonal values (outlined in bold) and the remaining values represent the correlation among respective constructs. When bold diagonal values are greater than values within the same column and row, then discriminate validity can be attained. AVE needs to be greater than the two constructs' correlation squared in order to sustain discriminant validity, according to Fornell and Larcker (1981). Every AVE value's square root is higher than the correlation, which means multicollinearity is not there or there is support for discriminant validity.

The endogenous and exogenous variables' overall measurement models had CFA conducted on them. Measurement model sufficiency can be analyzed based on the requirements of composite reliability, convergent validity, discriminant validity, and overall measurement models. The use of the overall measurement model involved 35 response items with 10 first order latent constructs in order to evaluate two second order latent constructs involving the KMP exogenous variable and the SCA endogenous variable. Due to a model fit not being attained by the overall measurement model, the revised model was the basis which described the result of the overall measurement model (see Fig. 3). Seven items (KA6, KG5, KGF5, KGF3, KGF1, KI7, and KI1) were eliminated by the revised model and 35 items that were constrained were analyzed on overall fit criteria, based on the overall measurement model.

The items or latent constructs' SRW needs to be ($\geq$0.50), as proof of convergent validity (Byrne, 2010; Hair et al., 2010). Each item is significantly loaded on first order latent constructs that are pre-specified and each loading is estimated to be > 0.50 and are said to be significant statistically. All values' SRW are sufficiently between 0.53 and 0.91. Falk and Miller (1992) recommended the SMC results to be ($\geq$0.10), which range between 0.28 and 0.84, and found to be significant in conclusion. Each construct CFA has created good fit according to the
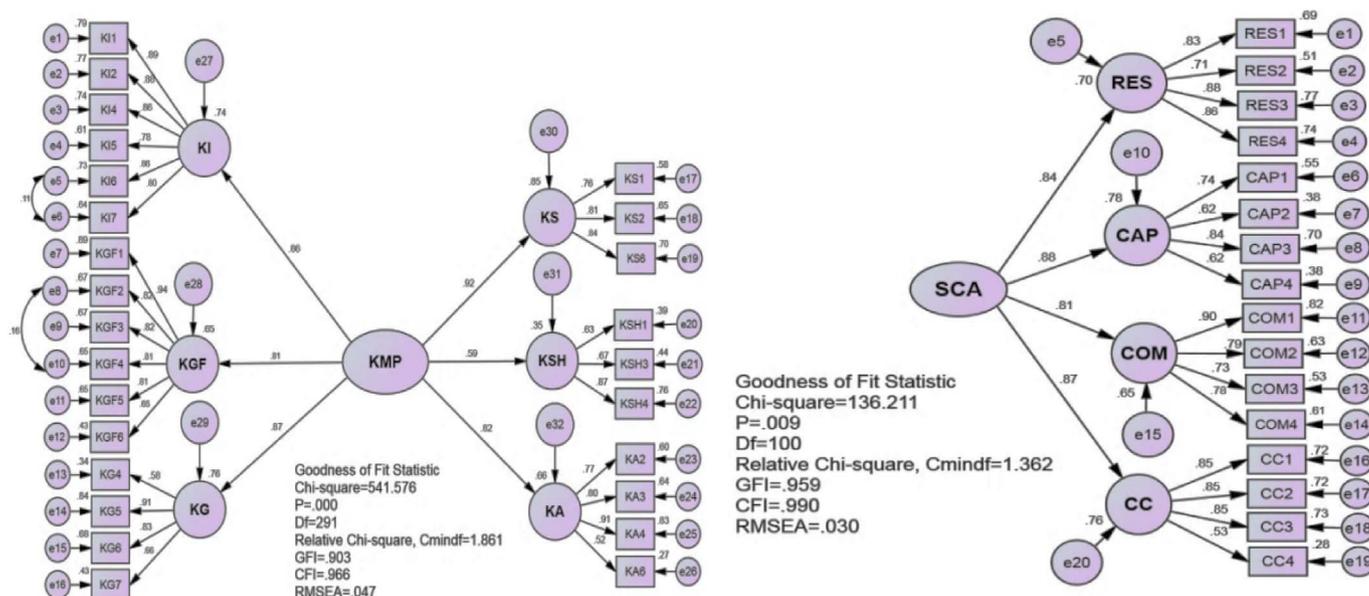
Fig. 2. (a) CFA of knowledge management processes; (b) CFA of sustainable competitive advantage.

goodness of fit index. The Chi-square is equal to 769.34 and p is equal to .000. The minimum discrepancy Chi-square's absolute fit index can be ignored by the researcher if the study's sample size is > 200, according to Jöreskog and Sörbom (1993) and Hair et al. (2010). The df had been 549 greater than the 0 cut-off point. The Chi-square/df had been 1.40, which is under the 5.0 threshold value. In addition, there was a 0.91 GFI that is more than the 0.90 cut-off value. The 0.97 CFI is greater than the 0.90 cut-off value. Furthermore, the 0.03 RMSEA is under the 0.08 threshold value. According to Hair et al. (2010), what this shows is that each construct adapts to the construct validity test. Also, every endogenous construct and exogenous construct was given permission to associate with another through a covariance that's equal to 76. Therefore, the constructs' overall measurement model verified the non-multicollinearity situation; the covariance being < 0.85. In conclusion, the study shows that the SCA variable and the SLC variable is completely heterogeneous and has validity for more hypothesis examining (Awang, 2012). Table 4 recaps the measurement models' goodness of fit indexes.

7.5. Structural model

The point of conducting a structural model test was to evaluate the model data fit as well as the hypothesized relationship of theoretical variables in connection with the overall good fit criteria, which Fig. 4 shows. The final model data fit or hypothesized model has their final SMC and SRW results displayed in Fig. 4, Table 5.

Table 3
Discriminant validity.

Indices	KMP (exogenous)	SCA (endogenous)
KMP (exogenous)	(**0.80**)	
SCA (endogenous)	0.76	(**0.85**)

Square Root of AVEs (Diagonal Values) > off-diagonal values.

The latent constructs or items' SRW should be (≥ 0.50), as evidence of convergent validity, according to (Byrne, 2010; Hair et al., 2010). Each item for the pre-specified first order latent constructs was considerably loaded and each estimated load was > 0.50, being significant statistically. Furthermore, the endogenous and exogenous variables' SMC had been confirmed and attained in connection with crucial criteria to attain a model fit. Falk and Miller (1992) recommended the SMC results that were (≥ 0.10), which ranged between 0.28 and 0.84, being thought of as significant. As a result, this shows that each variable along with their constructs had adapted to the test of construct validity. The model data fit CFA was a proper fit with the data, as shown by the indexes of goodness of fit such as ($p = .000$, Chi-square = 769.34, Chi-square/df = 1.40, df = 549, GFI = 0.90, and CFI = 0.97, RMSEA = 0.03); these are values that Hair et al. (2010) recommended.

In standard deviation, Beta estimate is measured by SRW. The KMP Beta estimate is 0.76 on SCA. This means if the KMP increases by a

Table 2
Composite reliability and average variance extracted.

Second order construct	First order construct	Number of items	SRW	α (above 0.70)	C.R. (above 0.60)	AVE (above 0.50)
Knowledge management processes (KMP)	Knowledge identification	6	0.86	0.98	0.98	0.64
	Knowledge goals formulation	6	0.81			
	Knowledge generating	4	0.87			
	Knowledge storage	3	0.92			
	Knowledge sharing	3	0.59			
	Knowledge application	4	0.82			
Sustainable competitive advantage (SCA)	Resources	4	0.84	0.93	0.91	0.73
	Capabilities	4	0.88			
	Competencies	4	0.81			
	Core competence	4	0.87			

C.R. = ($\Sigma\text{ķ}$) 2 / [($\Sigma\text{ķ}$) 2 + ($\Sigma\text{l} − \text{ķ}2$)]; ķ2 = factor loading of every item.

AVE = $\Sigma\lambda\text{i}$ 2/n; λ = standardized factor loading; n = number of item in a model.
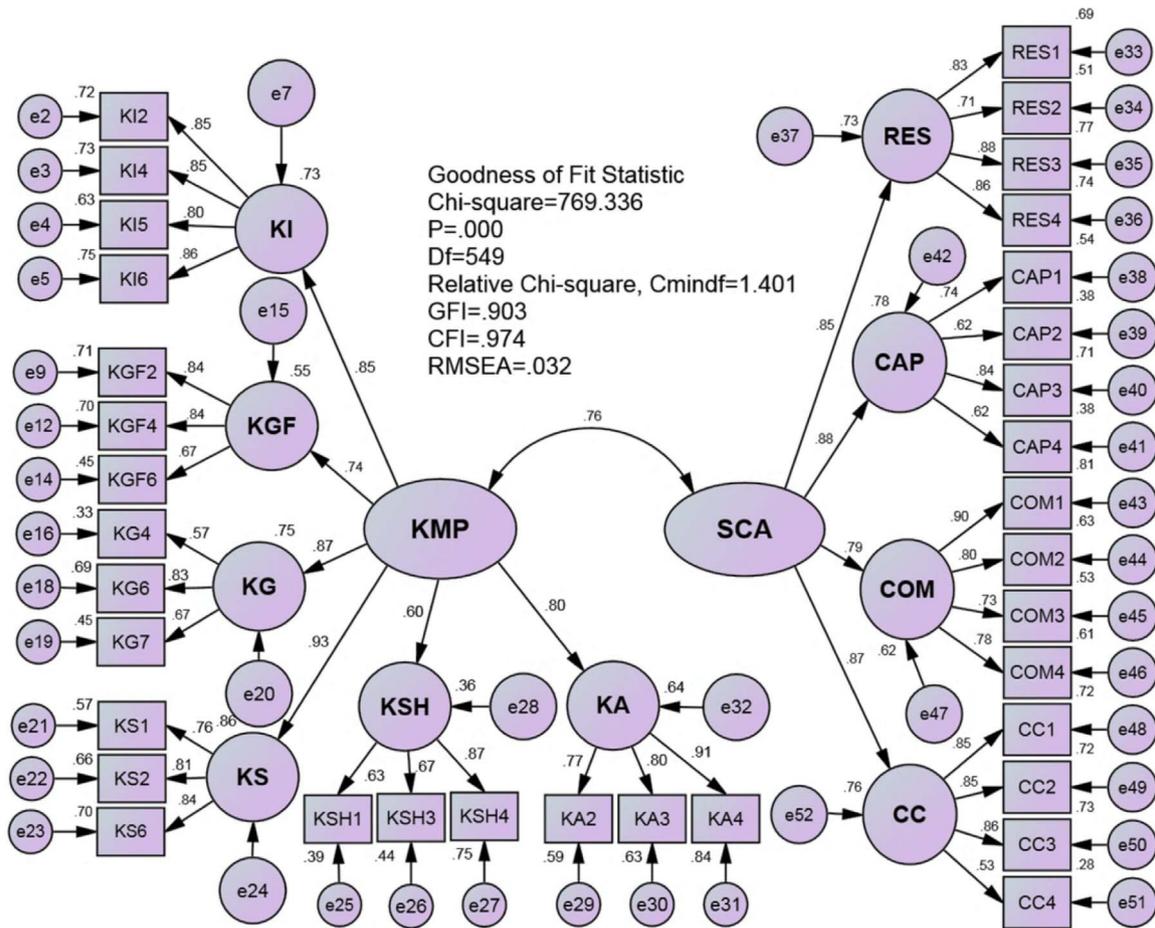
Fig. 3. Overall measurement model of variables simultaneously.

Table 4
Goodness of fit indexes of measurement models (N = 394).

Indices	Recommended value	Measurement model (exogenous)	Measurement model (endogenous)	Overall measurement model
		KMP	SCA	
Items remain		26	16	35
Chi-square	–	541.58	136.21	769.34
p-Value	> .05	.000	.009	.000
df	> 0	291	100	549
Chi-square/df	< 5	1.86	1.36	1.40
GFI	≥ 0.90	0.90	0.96	0.90
CFI	≥ 0.90	0.97	0.99	0.97
RMSEA	< 0.08	0.05	0.03	0.03

standard deviation of 1, then the SCA will increase by a standard deviation of 0.76. In addition, the R^2 estimate has calculated that the SCA predictors describe 58% of its total variance. What this means is the SCA error variance is about 42% of the SCA variance. In the hypothesis, it states there's a significant relationship between KMP and SCA. The relationship hypothesis description comes from the final hypothesized model from Fig. 4. There is a < 0.0001 probability of obtaining a CR in an absolute value as big as 11.73. Thus, the KMP's SRW is the SCA prediction greatly varies from 0 as 0.76 within the level of 0.001 (two-tailed). Therefore, the assertion of the hypothesis is (β = 0.76; CR = 11.73; $p < .001$) (Table 6), which means there is support for the hypothesis of the study. There was consistency with the relationship hypothesis when it came to expectations and there was also significant statistics with them in a direction that was expected. To sum it up, the

data supports the positive relationship between SCA and KMP.

8. Discussion

The study objective was to analyze the relationship between KMP and SCA. The data analysis results gave a lot of support to the stance that the KMP and SCA are positively related in a significant way. The results also indicate that KMP through KI, KGF, KG, KS, KSH, and KA contribute significantly to SCA. Likewise, from KMP to SCA, the hypothesized path was made to be (β = 0.76, t-value = 11.73 > 1.96, $p = .000 < .001$). Therefore, support is given to the hypothesis. There were consistent results in regards to the prediction, which is shown by a significant and positive estimated path to SCA. The significant results found between KMP and SCA support the results found in past studies as well (Bogner & Bansal, 2007; Bou-Llusar & Segarra-Ciprés, 2006; Grant, 1996b; Gupta & McDaniel, 2002; Leitch & Rosen, 2001; Lubit, 2001; Mcevily & Zaheer, 1999; Zack, 1999). The findings of this study contribute to theory and business practices of KMP and SCA. Firstly, this study provides many valuable academic theoretical implications. The results confirm the legitimacy of the underlying theories used in the study namely RBV and KBV. The results justify the use of these theories. The results demonstrated that integrated concept to the study variables was successfully examined in the private universities. Knowledge management was discussed from process capabilities perspective. It is considered an organization's capability to transform its tacit knowledge and explicit knowledge into a valuable form. Thus, the results provided strong support to the RBV by suggesting that SCA could be enhanced through a combination of organizational capabilities. The SCA was assessed from four elements used to construct the basic idea of the SCA, none of which is dispensable. These elements are the subject, media,
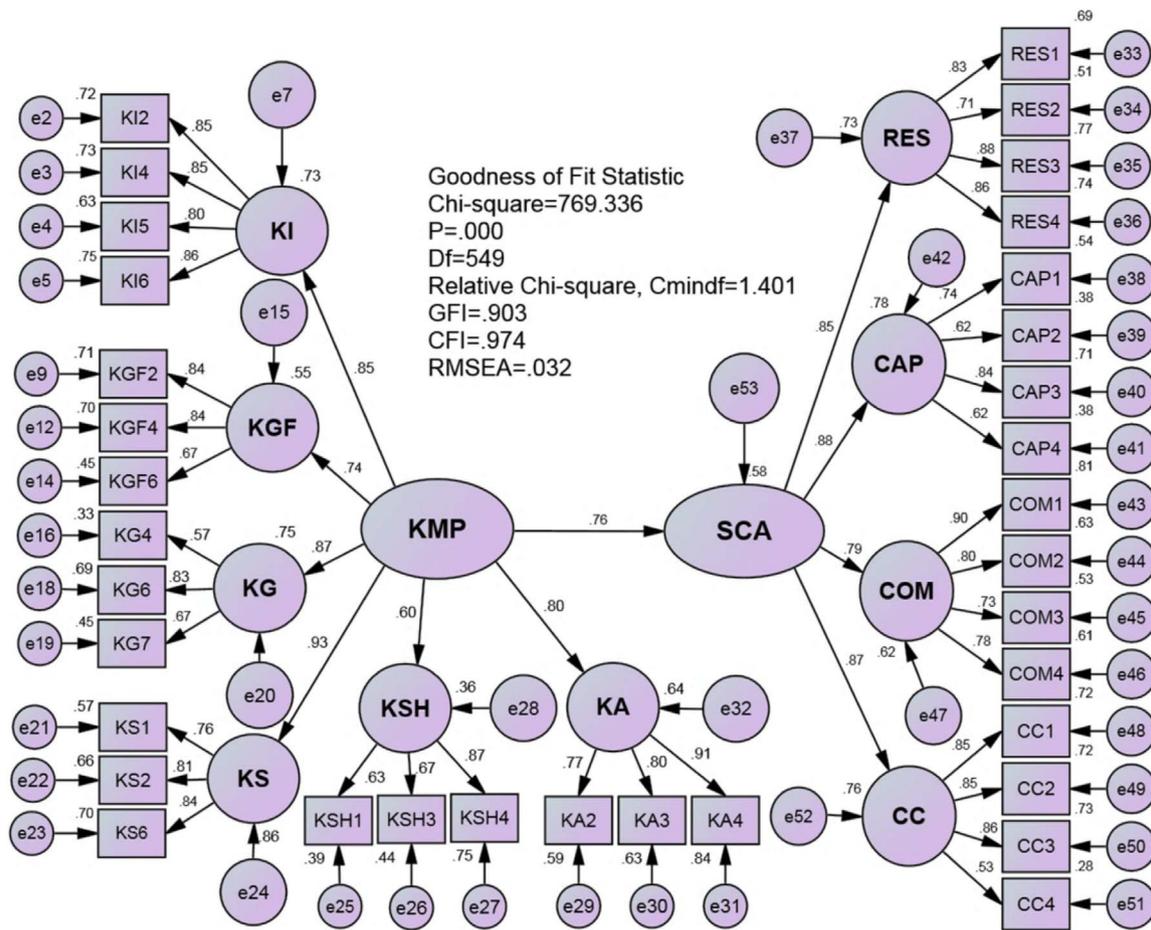
O.R. Mahdi et al.

Fig. 4. Re-specified model of the study variables.

Table 5
The SRW and SMC of re-specified model.

Variable	Constructs	Path			SRW	SMC (R²)	S.E.	C.R.	p
KMP		KMP	→	SCA	0.76	0.58	0.07	11.73	***
	KI	KMP	→	KI	0.86	0.73			
	KGF	KMP	→	KGF	0.74	0.55	0.07	12.43	***
	KG	KMP	→	KG	0.87	0.75	0.08	9.92	***
	KS	KMP	→	KS	0.93	0.86	0.07	13.89	***
	KSH	KMP	→	KSH	0.60	0.36	0.07	8.41	***
	KA	KMP	→	KA	0.80	0.64	0.07	14.46	***
SCA	RES	SCA	→	RES	0.85	0.73			
	CAP	SCA	→	CAP	0.88	0.78	0.08	12.53	***
	COM	SCA	→	COM	0.79	0.62	0.07	13.65	***
	CC	SCA	→	CC	0.87	0.76	0.07	14.18	***

SRW: standardized regression weights; S.E.: standardized error; C.R.: critical ratio.
*** $p \leq .001$.

Table 6
Effect of structural model based on path analysis: SRW.

Path			Beta estimate	S.E.	C.R.	p-Value*	Hypothesis
KMP	→	SCA	0.76	0.07	11.73	***	Supported

β: beta estimate or standardized regression weights; S.E.: standardized error; C.R.: critical ratio.
* $p \leq .05$.
*** $p \leq .001$.

objective, and update process. Therefore, this study filled the gaps in the extant literature through presenting a comprehensive understanding of the relationship between KMP and SCA. Secondly, the

current study introduced practical insight for private universities or business owners to recognize the important KMPs are playing in achieving SCA.

9. Conclusion

This study has achieved its objectives successfully. However, this study has a number of limitations need to be highlighted. The first limitation, this study focused on private universities in Iraq. Therefore, the generalizability of the findings in this study is limited. This is putting limitations on the generalizability of the results to different national contexts. Thus, the researchers suggest that similar studies can be done in other countries in similar private universities. In addition, this study only involved the private sector. This places limitations on the generalizability of the results to the public sector or the public universities in an academic environment. Therefore, the researcher suggests that similar studies can be done in public sector or public universities. The second limitation is the lack of other empirical studies to support the relationships between the variables as determined in this study. The third limitation, this study used the responses of academic leaders possess variety of positions such as chancellors, vice chancellors, deans, deputy deans, and heads of departments, heads of division, and heads of centres, assuming that their judgments regarding KMP and SCA are objective. The fourth limitation, this study is limited to knowledge management processes issues which are critical in a developing country like Iraq that has gone through difficult times. The fifth limitation, the study used overall variables (second order constructs) of KMP and SCA, to examine the relationships among them. Therefore, the researcher suggests conducting an analysis of variables dimensions (first order construct) may reveal more specific and detailed findings

regarding the relationship between the variables.

In conclusion, the purpose of the study was to analyze the relationship between KMP and SCA in private universities in Iraq. The results show there is significant relationship between KMP and SCA in private universities in Iraq. The discoveries gave support to the hypothesis that this study established and it gave a lot of support for the relationship between KMP and SCA, which were empirically analyzed in Iraqi private universities. Based on this study's underlying theories, such as KBV and RBV, the study helped improve SCA. Thus, the success of private universities relies heavily on KMP. Iraqi private universities' strategic assets are represented by knowledge on an increasing basis. Their corresponding value and the KMP will have their support, which will allow private universities in Iraq to take part in opportunities in real time and decide what the threats are. They are also the key to the success and competitive advantage of private universities. In this study, it illustrates that the mixture of organizational capabilities and resources in a RBV must be created, deployed and secured so that SCA can be enhanced. Therefore, some of these challenges can be overcome by private universities, particularly when it comes to exploiting the knowledge of employees in order to attain core competencies developed internally that are valuable, rare, inimitable and organized to attain a competitive advantage that is sustainable (Barney, 1995; Barney & Clark, 2007). To sum up everything, based on this study's research problem, SCA will be created by private universities if they can manage their knowledge-based assets better. The present study also recommends that future research could investigate the effect of different types such as, knowledge creation, acquisition, and knowledge transfer. In addition the socialization, externalization, combination, and internalization (SECI) model as well as tacit and explicit knowledge. For SCA, future researchers could examine the efficiency, quality, innovation differentiation, market differentiation, reputation, and responsiveness to customers.

References

Al-Alawi, A. I., Al-Marzooqi, N. Y., & Mohammed, Y. F. (2007). Organizational culture and knowledge sharing: Critical success factors. *Journal of Knowledge Management, 11*(2), 22–42.

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly, 25*(1), 107–136.

Almassoudi, M. F. P. (2007). *The relationship between the strategic innovation capabilities and transformational leadership behaviors and their impact in sustainable competitive advantage: Analytical study to perform sample of lecturers in private colleges in Baghdad.* Iraq: University of Baghdad.

Alreck, P. L., & Settle, R. (2004). *Survey research handbook* (3rd ed.). New Yorke: McGraw-Hill Education.

Amit, R., & Schoemaker, P. J. H. (1993). Strategic assets and organizational rent. *Strategic Management Journal, 14*(1), 33–46.

Arouet, F. M. (2009). Competitive advantage and the new higher education regime. *Especial education superior. 10. Especial education superior* (pp. 12–35).

Awang, Z. (2012). *Structural equation modeling using amos graphic* (1st ed.). Malaysia: Penerbit Press.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74–94.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Barney, J. (1995). Looking inside for competitive advantage. *The Academy of Management Executive (1993–2005), 9*(4), 49–61.

Barney, J., & Clark, D. (2007). *Resource-based theory: Creating and sustaining competitive advantage* (1st ed.). New York: OUP Oxford.

Barney, J., & Hesterly, W. (2009). *Strategic management and competitive advantage: Concepts and cases* (3rd ed.). New Jersey: Prentice Hall.

Barney, J., & Wright, P. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management, 37*(1), 31–46.

Barney, J. B. (1986). Strategic factor markets expectations, luck, and business strategy. *Management Science, 32*(10), 1231–1241.

Barney, J. B. (2007). *Gaining and sustaining competitive advantage* (3rd ed.). New Jersey: Pearson Prentice-Hall.

Barney, J. B., & Arikan, A. M. (2001). The resource-based view: Origins and implications. In M. A. Hitt, R. E. Freeman, & J. S. Harrison (Eds.). *The Blackwell handbook of strategic management*(1st ed.). (Oxford).

Bartol, K. M., & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems. *Journal of Leadership and Organizational Studies, 9*(1),

64–76.

Battisti, M., & Deakins, D. (2017). The relationship between dynamic capabilities, the firm's resource base and performance in a post-disaster environment. *International Small Business Journal, 35*(1), 78–98.

Besanko, D., Dranove, D., Shanley, M., & Schaefer, S. (2000). *Economics of strategy* (2nd ed.). New York: John Wiley & Sons.

Bogner, W. C., & Bansal, P. (2007). Knowledge management as the basis of sustained high performance. *Journal of Management Studies, 4*(1), 165–188.

Bolisani, E., & Bratianu, C. (2017). Knowledge strategy planning: An integrated approach to manage uncertainty, turbulence, and dynamics. *Journal of Knowledge Management, 21*(2), 233–253.

Bollinger, A., & Smith, R. (2001). Managing organizational knowledge as a strategic asset. *Journal of Knowledge Management, 5*(1), 8–18.

Bontis, N., & Serenko, A. (2009). A causal model of human capital antecedents and consequents in the financial services industry. *Journal of Intellectual Capital, 10*(1), 53–69.

Bou-Llusar, J. C., & Segarra-Ciprés, M. (2006). Strategic knowledge transfer and its implications for competitive advantage: An integrative conceptual framework. *Journal of Knowledge Management, 10*(4), 100–112.

Braganza, A., Brooks, L., Nepelski, D., Ali, M., & Moro, R. (2017). Resource management in big data initiatives: Processes and dynamic capabilities. *Journal of Business Research, 70*, 328–337.

Bryman, A., & Bell, M. (2012). *Business research methods* (3rd ed.). New Yorke: Oxford University Press.

Byrne, B. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing, 1*(1), 55–86.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). New York: Taylor & Francis.

Cardeal, N., & António, N. (2012). Valuable, rare, inimitable resources and organization (VRIO) resources or valuable, rare, inimitable resources (VRI) capabilities: What leads to competitive advantage? *African Journal of Business Management, 6*(37), 10159–10170.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment* (Vol. 17)Thousand Oaks, CA: SAGE Publications.

Chaharbaghi, K., & Lynch, R. (1999). Sustainable competitive advantage: Towards a dynamic resource-based strategy. *Management Decision, 37*(1), 45–50.

Choi, Y. S. (2000). *An empirical study of factors affecting successful implementation of knowledge management.* Lincoln, United States: University of Nebraska (Ph.D. Thesis).

Chua, A. (2004). Knowledge management system architecture: A bridge between KM consultants and technologists. *International Journal of Information Management, 24*(1), 87–98.

Claver-Cortés, E., Zaragoza-Sáez, P., & Pertusa-Ortega, E. (2007). Organizational structure features supporting knowledge management processes. *Journal of Knowledge Management, 11*(4), 45–57.

Coakes, E. (2003). *Knowledge management: Current issues and challenges.* London: Idea Group Inc (IGI), IRM Press.

Cockburn, I. M., Henderson, R. M., & Stern, S. (2000). Untangling the origins of competitive advantage. *Strategic Management Journal, 21*(10 − 11), 1123–1145.

Czinkota, M. R., & Kotabe, M. (2000). Entering the Japanese market: A reassessment of foreign firms' entry and distribution strategies. *Industrial Marketing Management, 29*(6), 483–491.

Daud, S., Fadzilah, W., & Yusoff, W. (2010). Knowledge management and firm performance in SMEs: The role of social capital as a mediating variable. *Asian Academy of Management Journal, 15*(2), 135–155.

Daud, S., & Yusuf, W. F. W. (2008). An empirical study of knowledge management processes in small and medium enterprises. *Communications of the IBIMA, 4*, 169–177.

Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know.* Cambridge: MA: Harvard Business School Press.

Day, G. S., & Wensley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority. *The Journal of Marketing, 52*(2), 1–20.

DeVellis, R. F. (1991). *Scale development: Theory and applications* (1st ed.). California: Sage.

Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high performance knowledge sharing network: The Toyota case. *Strategic Management Journal, 21*(3), 345–367.

Eden, C., & Ackermann, F. (2000). Mapping distinctive competencies: A systemic approach. *The Journal of the Operational Research Society, 51*(1), 12–20.

Eisenhardt, K. M., & Santos, F. M. (2000). Knowledge-based view: A new theory of strategy? In A. Pettigrew, H. Thomas, & R. Whittington (Eds.). *Handbook of strategy and management* (pp. 139–164). London, UK: Sage.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling.* Akron, Ohio: University of Akron Press.

Ferreira, J., & Fernandes, C. (2017). Resources and capabilities' effects on firm performance: What are they? *Journal of Knowledge Management, 21*(5), 1202–1217.

Flynn, B. B., Schroeder, R. G., & Sakakibara, S. (1994). A framework for quality management research and an associated measurement instrument. *Journal of Operations Management, 11*(4), 339–366.

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1) (93-50).

Gandhi, S. (2004). Knowledge management and reference services. *The Journal of Academic Librarianship, 30*(5), 368–381.

Grant, R. M. (1991). The resource-based theory of competitive advantage implications for strategy formulation. *California Management Review, 33*(3), 114–135.

Grant, R. M. (1996a). Prospering as in integration environments: Organizational capability knowledge. *Organization Science, 7*(4), 375–387.

Grant, R. M. (1996b). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(Winter Special Issue), 109–122.

Gupta, A., & McDaniel, J. (2002). Creating competitive advantage by effectively managing knowledge: A framework for knowledge management. *Journal of Knowledge Management Practice, 3*(October), 1–10.

Hafeez, K., Zhang, Y., & Malak, N. (2002). Core competence for sustainable competitive advantage: A structured methodology for identifying core competence. *Engineering Management, 49*(1), 28–35.

Hair, J., Black, W., Barry, J., Anderson, R., & Tatham, R. (2006). *Multivariate data analysis* (6th ed.). New Jersey: Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). New Yorke: Prentice Hall.

Halawi, L. A., Aronson, J. E., & McCarthy, R. V. (2005). Resource-based view of knowledge management for competitive advantage. *Journal of Knowledge Management, 3*(2), 75–86.

Heisig, P., & Vorbeck, J. (2001). Benchmarking survey results. In K. Mertins, P. Heisig, & J. Vorbeck (Eds.). *Knowledge management best practices in europe* (pp. 97–123). (1st ed.). Berlin: Springer.

Helfat, C., & Peteraf, M. (2003). The dynamic resource based view: Capability lifecycles. *Strategic Management Journal, 24*(10), 997–1010.

Hiebeler, R. (1996). Benchmarking: Knowledge management. *Strategy & Leadership, 24*(2), 22–29.

Hitt, M. A., Haynes, K. T., & Serpa, O. (2010). Strategic leadership for the 21st century. *Business Horizons, 53*(5), 437–444.

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2010). *Strategic Management: Concepts and Cases Competitiveness and Globalization, South-Western, Canada* (8th ed.). .

Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child clinical and pediatric psychology literatures. *Journal of Consulting and Cinical Psychology, 65*(4), 599–610.

Holsapple, C., & Singh, M. (2001). The knowledge chain model: Activities for competitiveness. *Expert Systems with Applications, 20*(1), 77–98.

Holste, J., & Fields, D. (2010). Trust and tacit knowledge sharing and use. *Journal of Knowledge Management, 14*(1), 128–140.

Hong, H., Kim, J., Kim, T., & Leem, B. (2008). The effect of knowledge on system integration project performance. *Industrial Management & Data Systems, 108*(3), 385–404.

Ireland, R. D., & Hitt, M. A. (2005). Achieving and maintaining strategic competitiveness in the 21st century: The role of strategic leadership. *Management, 19*(4), 63–77.

Javidan, M. (1998). Core competence: What does it mean in practice? *Long Range Planning, 31*(1), 60–71.

Jiajia, W. (2007). *Study on the key influence factors in the evolution from operational optimization to sustainable competitive advantage.* California: Northwestern Polytechnic University, NPU (Master Thesis).

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language* (1st ed.). Chicago: Scientific Software International.

Kaba, A., & Ramaiah, C. K. (2017). Demographic differences in using knowledge creation tools among faculty members. *Journal of Knowledge Management, 21*(4), 857–871.

Karadsheh, L., Mansour, E., Alhawari, S., Azar, G., & Naser, E.-B. (2009). A theoretical framework for knowledge management process: Towards improving knowledge performance. *Knowledge Management, 7*, 67–79.

Khandekar, A., & Sharma, A. (2005). Managing human resource capabilities for sustainable competitive advantage: An empirical analysis from Indian global organisations. *Education and Training, 47*(8/9), 628–639.

Kline, R. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New Yorke: Guilford Press.

Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science, 3*(3), 383–397.

Lee, C., & Lu, H. (2010). A process-based knowledge management system for schools: A case study in Taiwan. *The Turkish Online Journal of Educational Technology, 9*(4), 10–21.

Lee, Y., & Lee, S. (2007). Capabilities, processes, and performance of knowledge management: A structural approach. *Human Factors and Ergonomics in Manufacturing, 17*(1), 21–41.

Lei, D., Hitt, M. A., & Bettis, R. (1996). Dynamic core competences through meta-learning and strategic context. *Journal of Management, 22*(4), 549–569.

Leibold, M., Probst, G. J. B., & Gibbert, M. (2007). *Strategic management in the knowledge economy: New approaches and business applications* (2nd ed.). Germany: John Wiley & Sons.

Leitch, B. J. M., & Rosen, P. W. (2001). Knowledge management, CKO, and CKM: The keys to competitive advantage. *The Manchester Review, 6*(2 & 3), 9–13.

Lin, H.-F. (2007). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of Information Science, 33*(2), 135–149.

Ljungquist, U. (2008). Specification of core competence and associated components: A proposed model and a case illustration. *European Business Review, 20*(1), 73–90.

Lubit, R. O. Y. (2001). Tacit knowledge and knowledge management: The keys to sustainable competitive advantage. *Organizational Dynamics, 29*(4), 164–178.

Lucas, L. M., & Ogilvie, D. (2006). Things are not always what they seem: How reputations, culture, and incentives influence knowledge transfer. *The Learning Organization, 13*(1), 7–24.

Mahdi, O. R., & Almsafir, M. K. (2014). The role of strategic leadership in building sustainable competitive advantage in the academic environment. *Procedia - Social and Behavioral Sciences, 129*, 289–296.

Mahdi, O. R., Almsafir, M. K., & Yao, L. (2011). The role of knowledge and knowledge management in sustaining competitive advantage within organizations: A review. *African Journal of Business Management, 5*(23), 9912–9931.

Mahoney, J., & Pandian, J. (1992). The resource based view within the conversation of strategic management. *Strategic Management Journal, 13*(5), 363–380.

Malhotra, Y. (1997). Process models vs. variance models: What is the difference. Retrieved from http://www.brint.com/wwwboard/messages/842.html.

Mcevily, B., & Zaheer, A. (1999). Bridging ties a source of firm heterogeneity in competitive capabilities. *Strategic Management Journal, 20*(12), 1133–1156.

McEvily, S. K., & Chakravarthy, B. (2002). The persistence of knowledge-based advantage: An empirical test for product performance and technological knowledge. *Strategic Management Journal, 23*(4), 285–305.

Mertins, K., Heisig, P., & Vorbeck, J. (2001). *Knowledge management best practice in Europe* (1st ed.). Berlin: Springer.

MOHESR (2014). Private universities in Iraq. Retrieved from http://www.mohesr.gov.iq/PageViewer.aspx?id=35.

Newbert, S. (2008). Value, rareness, competitive advantage, and performance: A conceptual level empirical investigation of the resource based view of the firm. *Strategic Management Journal, 29*(7), 745–768.

Nonaka, I. (1991). The knowledge creating company. *Harvard Business Review, 69*(6), 96–104.

Nonaka, I. (2007). The knowledge-creating company. *Harvard Business Review, 26*(August), 598–600.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation.* New Yorke: Oxford University Press.

Okunoye, A., & Bertaux, N. (2008). Addressing contextual issues in knowledge management: A guiding framework. In I. M. Jennex (Ed.). *Current issues in knowledge management* (pp. 12–33). .

Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic Management Journal, 18*(9), 697–713.

Ong, J. W., & Ismail, H. B. (2008). Sustainable competitive advantage through information technology competence: Resource-based view on small and medium enterprises. *Communications of the International Business Information Management Association IBIMA. 1. Communications of the International Business Information Management Association IBIMA* (pp. 62–70).

Pearce, J. A., & Robinson, R. B. (1995). *Formulation, implementation, and control of competitive strategy* (9th ed.). New Yorke: McGraw-Hill International.

Peteraf, M. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal, 14*(3), 179–191.

Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource-based tangle. *Managerial and Decision Economics, 24*(4), 309–323.

Petrick, J., Scherer, R., Brodzinski, J. D., Quinn, J. F., & Ainin, M. F. (1999). Global leadership skills and reputational capital: Intangible resources for sustainable competitive advantage. *The Academy of Management Executive, 13*(1), 58–69.

Porter, M. (1985). *Competitive advantage: Creating and sustaining superior performance with a new introduction.* New York: Free Press.

Porter, M. (1996). *What is strategy?* (Published November)*74(6)*, 61–78.

Porter, M., & Kramer, M. R. (2006). Strategy and society the link between competitive advantage and corporate social responsibility. *Harvard Business Review, 84*(12), 78–92.

Porter, M., & Millar, V. (1985). How information gives you competitive advantage. *Harvard Business Review, 73*(4 July–August), 149–160.

Prahalad, C., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review, 68*(3), 79–91.

Probst, G., & Romhardt, K. (1997). *Building blocks of knowledge management: A practical approach: (Working paper no. 97.12).* EDIRC: Economics Departments, Institutes and Research Centers in the World, University de Genève.

Prusak, L. (1996). The knowledge advantage. *Strategy & Leadership, 24*(2), 6–8.

Punch, K. F. (2005). *Introduction to social research: Quantitative and qualitative approaches* (2nd ed.). London: SAGE Publications.

Raduan, C., Jegak, U., Haslinda, A., & Alimin, I. (2009). A conceptual framework of the relationship between organizational resources, capabilities, systems, competitive advantage and performance. *Research Journal of International Studies, 12*(12), 45–58.

Reed, R., & Defillippi, R. J. (1990). Causal ambiguity barriers to imitation and sustainable competitive advantage. *The Academy of Management Review, 5*(1), 88–102.

Rothaermel, F. (2013). *Strategic management: Concepts and cases* (1st ed.). New York: McGraw-Hill Irwin.

Rumelt, R. (2003). Towards a strategic theory of the firm. In N. J. Foss (Ed.). *Resources, firms, and strategies: A reader in the resource-based perspective* (pp. 556–570). Englewood Cliffs: NJ: Prentice-Hall.

Sanchez, R. (2004). Understanding competence-based management: Identifying and managing five modes of competence. *Journal of Business Research, 57*(5), 518–532.

Sanchez, R., & Heene, A. (1997). Reinventing strategic management: New theory and practice for competence-based competition. *European Management Journal, 15*(3), 303–317.

Sandhawalia, B. S., & Dalcher, D. (2011). Developing knowledge management capabilities: A structured approach. *Journal of Knowledge Management, 15*(2), 313–328.

Sekaran, U. (2003). *Research methods for business: A skill building approach* (4th ed.). New Yorke: John Wiley & Sons Inc.

Schiuma, G., Carlucci, D., & Lerro, A. (2012). Managing knowledge processes for value creation. VINE Journal of Information and Knowledge Management Systems. *42*(1), 4–14.

El Shafeey, T., & Trott, P. (2014). Resource-based competition: Three schools of thought and thirteen criticisms. *European Business Review, 26*(2), 122–148.

Sharma, N., & Goswami, S. (2009). The nuances of knowledge creation and development in Indian pharmaceutical industry. *Journal of Knowledge Management, 13*(5), 319–330.

Sher, P. J., & Lee, V. C. (2004). Information technology as a facilitator for enhancing dynamic capabilities through knowledge management. *Information Management, 41*(8), 933–945.

Shin, M. (2004). A framework for evaluating economics of knowledge management systems. *Information Management, 42*(1), 179–196.

Small, C. T., & Sage, A. P. (2006). Knowledge management and knowledge sharing: A review. *Knowledge Management, 5*, 153–169.

Spender, J. C., & Grant, R. M. (1996). Knowledge and the firm, overview. *Strategic Management Journal, 17*(Winter Special Issue), 5–9.

Stevenson, W. (2009). *Operations management* (10th ed.). McGraw-Hill Higher Education.

Stewart, T. A. (1997). *Intellectual capital: The new wealth of organization* (1st ed.). New York: Crown Publishing Group.

Sun, Z., & Hao, G. (2006). HSM: A hierarchical spiral model for knowledge management. *The 2nd International Conference on Information Management and Business 13–16 February* (pp. 542–551). (Sydney Australia).

Supyuenyong, V., Islam, N., & Kulkarni, U. (2009). Influence of SME characteristics on knowledge management processes: The case study of enterprise resource planning service providers. *Journal of Enterprise Information Management, 22*(1/2), 63–80.

Sveiby, K. E., & Lloyd, T. (1989). *Managing knowhow: Add value by valuing creativity.* London: Bloomsbury Pub Ltd.

Taka, M. (2010). Paths of private higher education in Iraq for the next five years (2010–2015). *Journal of Baghdad College of Economic Sciences University, 25*, 1–15.

Teece, D. J. (1998). Capturing value from knowledge assets the new economy, markets for know how & intangible assets. *California Management Review, 40*(3), 55–79.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.

Tseng, S. (2010). The effects of hierarchical culture on knowledge management processes. *Management Research Review, 33*(8), 827–839.

Un, C., & Cuervo-Cazurra, A. (2004). Strategies for knowledge creation in firms. *British Journal of Management, 1*(S1), 27–41.

Von Krogh, G. (1998). Care in knowledge creation. *California Management Review, 40*(3), 133–153.

Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review, 20*(2), 115–131.

Wee, J. C. N., & Chua, A. Y. K. (2013). The peculiarities of knowledge management processes in SMEs: The case of Singapore. *Journal of Knowledge Management, 17*(6), 958–972.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171–180.

Zack, M. H. (1999). Developing a knowledge strategy. *California Management Review, 41*(3), 125–145.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods* (9th ed.). Ohio: South-Western, Cengage Learning.