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The differential effects of potential and realized absorptive capacity on imitation and innovation strategies, and its impact on sustained competitive advantage

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ABSTRACT

Drawing on the knowledge-based view of the firm and the theory of resources and capabilities, this study attempts to (i) investigate the differential antecedent roles of knowledge-based capabilities such as potential and realized absorptive capacity on imitation and innovation strategies, and (ii) to assess how such interactions lead firms to achieve a sustained competitive advantage. Using quantitative data from 211 managers in middle and top managerial roles, we conducted structural equation modeling via partial least squares. This paper contends that imitation and innovation strategies might be complementary while yielding competitive advantages, and that the degree to which organizations absorb external knowledge has an impact on this connection. Contrary to previous research, this novel focus treats innovation and imitation strategies as distinct, but not opposing, notions. The results of this study fill a knowledge gap in the field of innovation management and provide empirical evidence for the interplay between absorptive capacity and the two complementary business strategies—innovation and imitation—which aids organizations in maintaining their competitive advantages.

1. Introduction

Absorptive capacity (ACAP) and its relationship to organizational innovativeness has become one of the most significant constructs in the literature on knowledge management and strategic management (Camisón & Forés, 2010). Absorptive capacity, measured by the two components of "potential absorptive capacity" (PACAP) and "realized absorptive capacity" (RACAP), provides an external base of information and opportunities for acquiring and assimilating external knowledge. In addition, ACAP represents a functional capability to transform and exploit existing knowledge, which helps generate new knowledge and innovation within firms (Murovec & Prodan, 2009; Leal-Rodríguez et al., 2014a). Unique knowledge and innovation are required to create a new product or launch a new service (Leal-Rodríguez et al., 2014a). These new products and services help increase customer satisfaction and sales volume once delivered to customers. Thus, firms have observed the influence of ACAP on their innovation strategies (Almudi et al., 2020).

There are many empirical studies that have addressed how absorptive capacity and other knowledge management-related mechanisms have an impact on organizational innovativeness (Ali & Park, 2016; Leal-Rodríguez et al., 2014a, b). However, there is a lack of empirical studies that analyze the impact of this capacity on innovation and imitation strategies in a differentiated manner. Moreover, research into the relationship between knowledge, innovation and imitation has not yielded conclusive results (Pérez-Luño et al., 2009). Therefore, this study aims to fill this research gap.

The concept of imitation is intimately tied to innovation and knowledge. In this regard, despite the fact that plenty of studies have attempted to demonstrate the positive impact of innovation on business competitiveness, management literature (with a few exceptions) has neglected imitation as an organizational behavior that may also produce competitive advantages over the long term.

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One possible explanation for this has to do with the fact that from the field of economic science it tends to be argued that imitation is merely conceptualized as the adoption of practices or the search for convergence with successful or leading companies. Under this premise, innovation and imitation are conceptualized as unrelated, as each is considered to embody a different mindset (Wu et al., 2019). On the one hand, innovation is commonly observed as a necessary condition for an organization's survival and growth, while on the other, imitation is often viewed as a spontaneous and haphazard act that impedes innovation. From the perspective of innovation management literature, however, a different argument has been offered. Imitation is not necessarily contradictory to innovation, but rather clearly supports or favors it, insofar as it contributes to the development of capabilities consistent with innovation (Wu et al., 2020).

The key ideas or variables in this study will now be described briefly and are later discussed in more detail in the theoretical framework section.

ACAP is a dynamic set of routines and processes through which companies acquire, assimilate, transform and exploit knowledge (Zahra & George, 2002). This construct constitutes one of the most relevant theoretical developments of recent times in the field of knowledge management and strategic management.

The issue is more intricate when it comes to distinguishing between innovation and imitation. On the one hand, innovation can be defined as the process whereby it is feasible to transform something through the introduction of something novel. For example, following Damanpour (2020), innovativeness might be regarded as the firm's ability to develop a new idea, device, product or service, method, practice, process of production and technology, structure or program that is a fundamental source of value creation and a means towards achieving a competitive advantage. On the other hand, imitation is considered as replicating, or copying, a pioneer or existing product, process, practice, or a business model that only seems to produce positive outcomes and generate sustainable competitive advantages (Ali, 2021; Doha et al., 2018).

Nevertheless, it does not seem entirely clear at what point an imitation could also be considered an innovation in itself, insofar as it could be introducing a certain degree of novelty, however minuscule. When a company decides to emulate the innovative practices of a competitor or to start offering the successful products or services marketed by a competitor, adapting them to its own context and particularities, is it not in a way innovating or, at least, paving the way for developing future innovations based on improving them?

A key differentiating aspect deals with the fact that organizations are likely to pursue various innovation strategies based on the level of novelty they imply for the market. The innovation management literature generally makes a distinction between an innovation strategy and an imitation strategy, referring to businesses with an innovation strategy as pioneers or early entrants in the market and those with an imitation strategy as followers or late entrants (Jiménez-Jiménez & Sanz-Valle, 2012).

Thus, the present study considers that imitation and innovation strategies can complement one another, and that the extent to which firms absorb external knowledge affects the complementary relationship between imitation and innovation. This differs from previous studies on the interactions between ACAP and innovation, in which innovation and imitation strategies are studied as unrelated or even antagonistic concepts.

In this vein, PACAP deals with the firm's capability of acquisition and assimilation of existing knowledge, which provides the basis for prior knowledge, whereas RACAP is the capability for transformation and exploitation to create novel knowledge that provides the basis and paves the way for innovation (Kim, 1998). As such, ACAP emerges as an organizational learning capability that promotes through its two dimensions (PACAP and RACAP), both innovation and imitation strategies (Kim, 1995; 1998). This study, however, argues that the roles played by these two dimensions of ACAP in boosting imitation and innovation strategies are different from each other. This distinction is based on the assumption that both PACAP and RACAP should have a positive impact on both imitation and innovation strategies. Nonetheless, the impact of RACAP is likely to be stronger on innovation than on imitation.

Not surprisingly, the literature on innovation has grown vastly in the last few decades, and it seems as if the growth trend will continue. Innovation has long been one of the fundamental and sustainable sources of economic development, value creation, and competitive advantage (Almudi et al., 2020; Camisón & Villar-López, 2011; Khosravi et al., 2019). Existing literature has long recognized innovation as a crucial strategy for firms' long-term success (Khosravi et al., 2019). However, imitation is also an alternative smart strategy for using innovation capabilities, but one which has received far less attention (Ali, 2021; Lee & Tang, 2018; Lee & Zhou, 2012; Liao, 2020). Several studies have recently shown that imitation has a strongly positive association with performance (Ali, 2021; Lee & Tang, 2018; Lee & Zhou, 2012). Therefore, in this study, we adopt what we believe to be an interesting stance where imitation is considered equally as relevant to firm performance as innovation rather than having negative or less important connotations.

Previous studies have shown that both imitation and innovation strategies have strong positive association with firm performance (Ali, 2021; Lee & Tang, 2018; Lee & Zhou, 2012; Liao, 2020; Mena & Chabowski, 2015). This study discriminates between imitation and innovation strategies and argues that some firms practice imitation and innovation strategies simultaneously. Therefore, we examine not only the individual effect of imitation and innovation strategies on a firm's competitive advantage but also examine the possible differential effect the strategies of imitation versus innovation have on a firm's competitive advantage.

Aiming to address the research gap, the findings of this study add to the theory and practice of innovation management and offer empirical proof that the interaction between absorptive capacity and the two complementary strategies (innovation and imitation) helps firms maintain their competitive advantage.

Ultimately, the above discussion raises the following research question: to what extent do the two dimensions of ACAP (i.e., PACAP and RACAP) influence the effect of organizational innovation (imitation versus innovation strategy) on a firm's competitive advantage? To answer this research question, we explore the relative nature of the associations between PACAP, RACAP, imitation strategy, innovation strategy and firms' competitive advantage.

2. Theoretical framework and hypotheses development

Due to the significance attached to innovation and, to a lesser extent, imitation, numerous studies have been conducted in an effort to develop theoretical frameworks that can explain the primary forces or drivers that encourage both of these phenomena as well as the main obstacles or components that stand in their way. This work is based on the approach known as the knowledge-based view (KBV) of the firm, which in turn derives from the theory of resources and capabilities-based view (RCBV), since the subject of interest of the study relates to the relationship between the ability to absorb external knowledge and innovation and imitation strategies. The main reason is that these resources are inherently difficult to imitate, replicate or appropriate, which facilitates the maintenance of differentiation, improves performance and plays an essential role in the organization's ability to innovate (Mahmood & Rufin, 2005; Pérez-Luño et al., 2009). According to the theory of ACAP, four distinct but complementary capabilities must exist: acquisition and assimilation, which together form PACAP, and transformation and exploitation, which together form RACAP. These are more likely to achieve a competitive advantage through innovation (Zahra & George, 2002). The RCBV supports the notion of ACAP as a dynamic capability. Thus, RCBV helps to explain that a firm's competitive advantage is viable only when a firm possesses heterogeneous resources (managerial

and organizational skills, processes and routines, information and knowledge) and develops them into capabilities that are valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991). The KBV supports the notion that ACAP pertains to knowledge creation and utilization. Following the configuration of these theories, this study analyzes the antecedent role of knowledge-based capabilities such as ACAP and innovation-based capabilities such as imitation and innovation, which leads firms to achieve superior performance and competitive advantage. ACAP helps a firm in identification, assimilation, and applying knowledge to value creation (Cohen & Levinthal, 1990). Learning capabilities enable ACAP to develop problem-solving skills (Kim, 1995; 1998). In the transformation process of individual learning into organizational learning, the role of knowledge-based capabilities is crucial in developing a firm's ability to acquire and assimilate knowledge (for imitation) as well as problem-solving skills of transformation and exploitation to create new knowledge (for innovation). ACAP as a dynamic capability is crucial in determining how external sources of knowledge influence innovation processes.

ACAP has two important dimensions, PACAP and RACAP (Zahra & George, 2002). PACAP is a process as well as a capacity by which firms acquire and assimilate external knowledge which could help in developing imitation. RACAP is a process and a capacity by which firms transform and exploit the absorbed knowledge that could help develop innovation. The two dimensions are separate but have complementary effects. Therefore, the study investigates how to achieve sustained competitive advantage through the complementary effects of PACAP and RACAP on imitation and innovation strategies.

2.1. Absorptive capacity (ACAP)

Cohen and Levinthal (1990) define ACAP as "a firm's ability to recognize the value of new external knowledge, assimilate it, and apply it to commercial ends" (p.128). The definition of ACAP by Zahra and George (2002) is the most widely used after that of Cohen and Levinthal (1990). Zahra and George (2002) define ACAP as "a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability" (p. 186). This study borrows the construct proposed by Zahra and George (2002) which distinguishes four variables of ACAP (i.e., acquisition, assimilation, transformation and exploitation), and at the same time categorizes these four variables into two sub-constructs: PACAP and RACAP. PACAP fosters competitive advantage through the configuration of organizational resources and flexibility, while RACAP does so through the development of a new product and process (Camisón & Forés, 2010; Jansen et al., 2005).

Acquisition refers to the capability of a firm to locate, value, and obtain relevant knowledge from external sources that are crucial for operations. Acquisition identifies the source of information (Fosfuri & Tribó, 2008) and increases the intensity and speed of a firm's struggle to obtain external relevant knowledge (Zahra & George, 2002). Assimilation increases a firm's ability to understand externally generated knowledge. This capability includes processes and routines that enable a firm to analyze, understand, interpret, internalize, and classify the externally generated knowledge into its own operations (Szulanski, 1996). Transformation is the capacity to develop and refine embedded routines and processes that facilitate the integration of newly acquired and assimilated knowledge with existing knowledge (Camisón & Forés, 2010). Exploitation as an application capacity and organizational capability includes the processes and routines that facilitate the firm's ability to refine, use, extend, and leverage previously acquired, assimilated, and transformed knowledge to create new processes, routines, competences, and knowledge (Camisón & Forés, 2010).

2.2. Imitation and innovation strategies

Innovation has widely been researched in numerous management and organization studies (Ali & Park, 2016; Ali et al., 2016; Černe et al., 2016; Damanpour, 2020; Khosravi et al., 2019). Innovation refers to an idea, activity, practice, process, system, or solution, supposed to be new, by a firm of adoption (Damanpour, 2020). Previous literature describes innovation as having three different aspects, that is, as an invention, a new idea, and a process (Damanpour, 2020; Khosravi et al., 2019; Kim, 1997). First, innovation is a creative process through which several ideas, concepts, or entities are integrated to produce a new configuration (Ali & Park, 2016; Černe et al., 2016; Khosravi et al., 2019). Second, in the context of a new idea, the crucial exploitation of something new and novel is necessary (Ali & Park, 2016; Kim, 1997). Third, in the process context, innovation describes the process through which an individual, firm, society or government accepts, develops, and implements a new idea, work or approach (Ali & Park, 2016; Kim, 1997). This study borrows the operationalization of innovation from Lee and Tang (2018), who describe innovation as the extent to which a firm's strategic priority is to adopt a structure, culture, or leadership that focuses on adopting revolutionary ideas, approaches, technologies, and risk-taking. Therefore, innovation often refers to a capability to develop a new idea, device, product or service, method, practice, process of production and technology, structure or program that is a fundamental source of value creation and a means towards achieving a competitive advantage (Damanpour, 2020).

However, in many firms, by contrast, imitation through "learning-by-doing" could be also a viable strategy of accumulating organizational learning capability (Ali, 2021; Ali & Park, 2014; Kim, 1999; Lee & Tang, 2018; Lee & Zhou, 2012; Xia & Liu, 2018; Zhou, 2006). Similar to late movers, imitation refers to a firm's strategic decision to adopt a structure, culture, or leadership that focuses on mimicking a pioneer's or competitor's practices, processes, or tactics in order to achieve financial success and provide long-lasting competitive advantages. (Ali, 2021; Doha et al., 2018; Lee & Tang, 2018; Lee & Zhou, 2012; Liao, 2020; Schnaars, 1994; Shenkar, 2010; Zhou, 2006). Though a negative connotation is attached to imitation (Schnaars, 1994), numerous cases show that imitation is as crucial as innovation to firm survival, growth, and prosperity (Shenkar, 2010). Imitation is not limited to design copies, creative adaption, technological leapfrogging, and adaption to another industry (Schnaars, 1994), but also takes the form of imitating, replicating, or copying a pioneer or existing product, process, practice, or a business model that only seems to produce positive outcomes (Mena & Chabowski, 2015; Shenkar, 2010) and add further value to customers to gain a competitive advantage (Zhou, 2006). In this study, imitation does not relate to the form of imitation such as counterfeits, clones, copycats, or pirates (Schnaars, 1994) but corresponds to several forms such as duplicative imitation, creative imitation, and innovative imitation, which seem to produce positive outcomes (Kim, 1999).

In the beginning, a firm starts with duplication imitation by reverse engineering an existing procedure, process, strategy, or business model. A firm then moves to creative imitation by improving on the pioneer's original and adding further value to the customers. With innovative imitation, a firm becomes able to generate its own innovation to pass the pioneer and challenge competitors (Ali, 2021; Doha et al., 2018; Kim, 1999; Lee & Zhou, 2012; Zhou, 2006). Scholars suggest that imitation entails a large degree of innovation. Therefore, firms may employ imitation, innovation or both because imitation is approached as an alternative smart strategy that is not only consistent with innovation but also is crucial to the focused and effective use of innovation capabilities (Ali, 2021; Doha et al., 2018; Lee & Tang, 2018; Shenkar, 2010). Finally, this study considers both imitation and innovation to be equally important.

2.3. PACAP and RACAP

In the past three decades, the literature on ACAP has grown substantially and the research shows that this growth trend will continue (Gao et al., 2017; Zou et al., 2018). According to the theory of ACAP,

PACAP and RACAP are two distinct processes, and their effect is not isolated but rather complementary (Leal-Rodríguez et al., 2014b). The development of acquisition and assimilation of ACAP depends on acquiring and capturing existing prior-related new knowledge, but does not guarantee the transformation and exploitation of RACAP (Zahra and George, 2002). RACAP develops and refines the routines that facilitate the integration of existing and newly acquired knowledge as well as to extend and leverage existing competencies or to create new knowledge by embedding acquired and transformed knowledge into its operations. Though PACAP and RACAP are basically distinct capabilities that involve different objectives, structures, and strategies (Ali & Park, 2016; Leal-Rodríguez et al., 2014a, b), their participation is equally important for the development of innovation and performance.

PACAP is a firm's capability to acquire new knowledge, while RACAP is a firm's capability to exploit and apply this newly acquired knowledge. Thus, it is strongly recommended for the newly acquired knowledge to be saved in a repository within a firm, which will facilitate accessibility for the firms' members who exploit it. Otherwise, RACAP and the newly acquired knowledge will be lost (Leal-Rodríguez et al., 2014b).

Although literature provides evidence that the link between PACAP and RACAP is theoretically and conceptually supported, research to date does not provide enough empirical evidence, with a few exceptions (Ali & Park, 2016; Leal-Rodríguez et al., 2014a, b). In addition, the conclusions of previous studies are based on anecdotal evidence and case analyses, and it is also difficult for the findings to be generalized, because of the differences in their economical context, culture, methodologies, purpose, measure, and samples they use.

Therefore, the development of a firm's ACAP not only relies on the efficient knowledge acquisition and assimilation of ACAP but also their capability to integrate the newly acquired knowledge into their knowledge base for further transformation and exploitation of ACAP. Hence, we hypothesize:

H1: PACAP has a positive effect on RACAP

2.4. PACAP, imitation and innovation

Previous research suggests that ACAP relates to organizational activities and practices associated with its four variables (i.e., acquisition, assimilation, transformation, and exploitation) for the enhancement of organizational innovation (Chen et al., 2009; Cohen & Levinthal, 1990; Costa & Monteiro, 2016; Howell, 2020; Khosravi et al., 2019; Liao et al., 2007; Song, 2015; Tsai, 2001; Zahra & George, 2002). Furthermore, previous studies also provide evidence that ACAP, measured in terms of PACAP and RACAP, promotes organizational innovation (Ali & Park, 2016; Leal-Rodríguez et al., 2014a, b). As a complex and integrated process, ACAP is also one of the essential antecedents not only for an organization's innovation but also for imitation. ACAP emerges as an organizational learning capability that promotes innovation that also promotes imitation (Kim, 1995; 1998).

The acquisition and assimilation of external knowledge provides opportunities for recipient firms to extend their knowledge foundation and make up for the internal scarcity of resources (Zapata-Cantu et al., 2020). PACAP is a process by which a firm expands its efforts to acquire and assimilate new external knowledge that could help in developing, probably through imitation. Accumulated prior knowledge base as an element of ACAP captures Kim's (1998) description of a firm's capability to make sense of, to assimilate, and use new knowledge. Prior related knowledge provides a foundation for basic skills and competencies in less developed firms, while it provides more recent scientific research and technologies in more advanced firms (Kim, 1995; 1998). These observations correspond to the notion of a PACAP-imitation link. Hence, we posit the following hypothesis:

H2: PACAP has a positive effect on imitation strategy

Firms increasingly rely on outside sources of knowledge to foster organizational innovation and improve their performance (Zahra & George, 2002). Some studies conclude that PACAP extensively influences innovation performance (Fosfuri & Tribó, 2008). The empirical studies on the relation between PACAP and innovation provide evidence that this relationship is positive (Fosfuri & Tribó, 2008; Tsai, 2001). PACAP increases the ability of a firm to acquire and assimilate external knowledge sources and experiences that are necessary for the innovation process. PACAP enables a firm to integrate the acquired and assimilated new external knowledge into innovation. Some firms have a superior capability to locate and use their existing knowledge to foster its innovation. PACAP is crucial in developing innovation via the process of acquisition and assimilation of new external knowledge and experience, hence reviving the stock of knowledge and generating new product, process or practice that are fundamentally different from existing ones (Jansen et al., 2005; Sheng & Chien, 2016). Therefore, new external knowledge more likely fosters achieving greater innovation. Therefore, PACAP accelerates the capacity of a firm to identify and use externally assimilated knowledge to improve its innovative capability. Hence, we posit the following hypothesis:

H3: PACAP has a positive effect on innovation strategy

This study does not assume an equally strong association of PACAP with imitation and innovation. This study argues that although PACAP affects both imitation and innovation strategies, it has a stronger influence on innovation than on imitation strategy. Although some studies have provided evidence of a positive association between ACAP, imitation, and innovation (Song, 2015), there is little understanding of how PACAP, imitation, and innovation are interrelated. In many firms, the development process is based on both imitation and innovation (Ali & Park, 2014). Song (2015) provides a positive association between imitation and innovation. The effect of PACAP on either imitation or innovation depends on the source of acquisition and assimilation.

In many cases, firms develop an alternative way of borrowing knowledge from early pioneers, other firms, and even competitors because it is more feasible, cost-effective, and much faster (Shenkar, 2010). Some studies also provide evidence that the acquisition and assimilation of heterogeneous knowledge is more likely to result in more vital radical innovation than incremental innovation (Atuahene-Gima, 2005; Sheng & Chien, 2016). Previous research also suggests that most innovations result from borrowing rather than invention (Cohen & Levinthal, 1990). This observation suggests imitation as alternative approach is not contradictory to, but rather supportive of, innovation (Shenkar, 2010). Alternatively, firms evaluate and utilize external knowledge, which is crucial for innovative capability (Cohen & Levinthal, 1990). Hence, we posit the following hypothesis:

H4: The effect of PACAP is stronger on innovation strategy than imitation strategy

2.5. RACAP, imitation and innovation

Zahra and George (2002) theorize that the PACAP-innovation link depends on the efficiency through which PACAP is transformed into RACAP. Previous studies suggest a positive association between RACAP and innovation (Zapata-Cantu et al., 2020). RACAP is a capacity in knowledge-based competition which helps a firm to transform current and newly acquired knowledge into a new idea, device, product or service, method, practice, process of production and technology, structure, or program (Cepeda-Carrion et al., 2012; Leal-Rodríguez et al., 2014a, b). RACAP increases the combinative capability of problem-solving skills, which help to synthesize and apply current knowledge as well as newly acquired knowledge, probably for innovation (Ali & Park, 2016; Jansen et al., 2005). In the process of transformation and exploitation, the role of knowledge-based capabilities is crucial in developing a firm's problem-solving skill to create or apply an idea and solution to innovation. Intensity of effort captures Kim's (1998) description and reflects the amount of energy to solve problems. It is not enough to expose a firm to relevant external knowledge until efforts are made to internalize it. Learning how to solve problems in developing

innovations is often achieved through RACAP, which provides several practice and trials on corresponding problems. Therefore, RACAP enables sufficient time and effort to be invested during the process development of innovation. These observations relate to the notion of RACAP and the imitation relationship (Kim, 1995; 1998).

Previous studies provide evidence that RACAP positively affects innovation (Leal-Rodríguez et al., 2014a, b; Song, 2015; Zapata-Cantu et al., 2020), but the relationship between RACAP and imitation is not yet examined (Song, 2015). Early evidence in the literature on the RACAP–imitation link is primarily based on case analysis, and this link has been supported only theoretically (Ali, 2021; Ali & Park, 2014; Kim, 1995; 1998; Park et al., 2011), while empirical evidence is yet to be provided. Hence, we posit the following hypothesis:

H5: RACAP has a positive effect on imitation strategy

Numerous studies on the association between RACAP and innovation provide empirical evidence that this association is positive (Ali & Park, 2014; Leal-Rodríguez et al., 2014a, b; Song, 2015; Zapata-Cantu et al., 2020). Firms increasingly rely on the knowledge and experience of external organizations to develop their problem-solving skills for innovation. RACAP enables a firm to internalize, convert, use and implement their externally acquired knowledge, which provides a basis for insights into current knowledge (Sheng & Chien, 2016). RACAP is a combinative capability that helps in a process involving some level of change of the new external knowledge for imitation as well as helping to integrate the newly acquired knowledge with existing knowledge for innovation. The transformation of RACAP is a process of refining the internal routines and processes that facilitates integrating existing knowledge with newly acquired and assimilated knowledge for innovation. The modifications and adaptions of the knowledge acquired from outside sources and configuring it with existing knowledge through transformation is crucial for innovation (Lane et al., 2006; Zahra & George, 2002). Exploitation of RACAP uses and implements the newly acquired knowledge along with its existing routines and processes not only to improve its existing routines and processes for imitation but to create a new device, method, practice, process of production and technology, structure or program including a new product, process, and management innovation (Fosfuri & Tribó, 2008; Jiménez-Barrionuevo et al., 2011; Zahra & George, 2002). Hence, we posit the following hypothesis:

H6: RACAP has a positive effect on innovation strategy

Zahra and George (2002) suggest that both PACAP and RACAP always coexist and fulfill a necessary but not a sufficient condition to foster innovation. For instance, a firm cannot possibly leverage knowledge without first acquiring it. Likewise, a firm may be receptive to acquiring and assimilating external knowledge but may not have the ability to transform and exploit the knowledge for fostering innovation. This suggests that PACAP is not enough to innovate. RACAP is equally necessary to transform and exploit the PACAP to enhance a firm's innovation. RACAP provides new insights and enables a firm to configure the existing knowledge as well as that newly acquired, while institutionalizing and transforming the new knowledge into innovation processes (Zahra & George, 2002). Previous studies suggest that a sustainable competitive advantage not only relies on PACAP but largely depends on RACAP (Sheng & Chien, 2016). Based on evidence in Atuahene-Gima (2005) and Sheng and Chien (2016), this study presumes that transformation helps to refine and reconfigure existing new knowledge and that exploitation supports change in existing routines and processes, both of which have a stronger influence on innovation strategy rather than on imitation strategy alone. This study does not hypothesize an equally strong association of RACAP with imitation and innovation strategies, however; it proposes instead that although RACAP affects both imitation and innovation strategies, it has a stronger influence on innovation strategy than on imitation strategy. Based on these arguments, this study examines the following hypothesis:

H7: The effect of RACAP is stronger on innovation strategy than imitation strategy

2.6. Imitation, innovation, and sustained competitive advantage

Most of the broad literature on innovation and a firm's performance has documented that innovation fosters a firm's performance, which frequently results in its sustainable competitive advantage (Camisón & Villar-López, 2011; Damanpour, 1991, 1996; Jiménez-Jiménez & Sanz-Valle, 2011; Lee & Tang, 2018). Many previous empirical findings are consistent with theories and provide empirical evidence that a positive association exists between innovation and performance (García-Morales et al., 2012; Jiménez-Jiménez & Sanz-Valle, 2011) or between various types of technological and non-technological innovation (e.g., product, process, service, management, administrative, marketing) and performance (Ali et al., 2016; Camisón & Villar-López, 2011). Innovative firms are more likely to achieve a higher market share, which leads to greater financial profitability (García-Morales et al., 2012) and achieving superior performance (Lee & Tang, 2018). The evidence of previous studies is more compelling because they also report that firms are not focusing solely on innovative tools and techniques, initiatives, projects, products, processes, and services that affect productivity and performance positively (Lööf & Heshmati, 2002). Recently, a small number of studies have shown that an imitation orientation may also lead to better performance (Ali, 2021; Lee & Tang, 2018; Liao, 2020; Mena & Chabowski, 2015). Therefore, these observations suggest that both imitation and innovation have their own merits that lead to sustained competitive advantage.

However, this study does not assume an equally strong effect of imitation and innovation with sustained competitive advantage. In line with previous studies (Ali, 2021; Lee & Tang, 2018), this study argues that an innovation strategy has a stronger influence on sustained competitive advantage than imitation strategy does. Innovation is expensive and involves more risky activities than imitation with a positive outcome of performance. Innovative firms are more likely to bear high risk, cost, employee dissatisfaction, or unwarranted changes that lead to creating breakthrough products, resulting in high customer satisfaction and higher market return (Lee & Tang, 2018, Zhou, 2006). In contrast, an imitation strategy leads to superior performance by allowing a firm to quickly respond to a competitor's appealing products, reducing cost in R&D, learning from competitors' errors, and imitating only those actions that seem to produce positive outcomes (Lee & Zhou, 2012; Mena & Chabowski, 2015; Lieberman & Asaba, 2006). Firms that engage in imitative activities are more likely to capture second-hand experience through mimicking, reduced cost, risk, and time associated with process development of a new product or service, thus cutting the firm's profit potential (Lee & Tang, 2018). This final set of hypotheses may not be novel, but they further confirm and contribute to the results in Ali (2021), and Lee and Tang (2018). Therefore, based on these arguments, this study examines the following set of hypotheses:

H8: Imitation strategy has a positive effect on a firm's sustained competitive advantage.

H9: Innovation strategy has a positive effect on a firm's sustained competitive advantage.

H10 *Such an association (H8 and H9) is stronger in innovation strategy than in imitation* strategy.

2.7. Model and research hypotheses

The research framework in this study proposes ten hypotheses in four different sets as depicted in Fig. 1. The effects of ACAP on imitation and innovation strategies that foster sustained competitive advantage in a single framework was not explored in previous studies. Therefore, first, this study examines the effect of PACAP on RACAP. Second, this study selects PACAP of ACAP and examines its effect on imitation and innovation strategies and measures when this effect is stronger. Third, this study selects RACAP and examines its effect on imitation and innovation strategies and when this effect is stronger. Finally, this study selects imitation and innovation strategies and examines their effects on

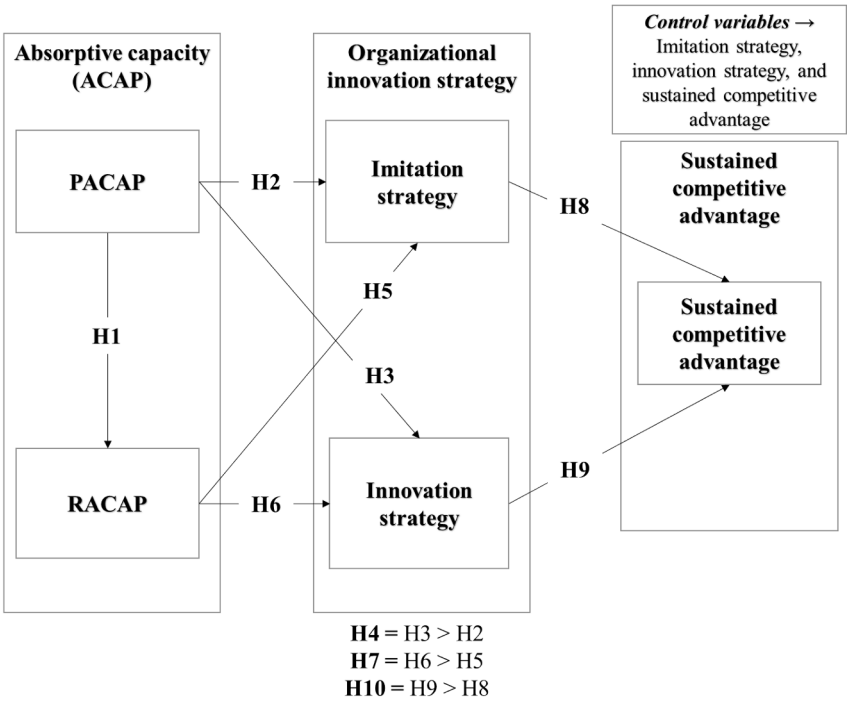

Fig. 1. Theoretical framework.

sustained competitive advantage and when this relationship is stronger, whether in the case of imitation or innovation strategy.

3. Research methodology

This section consists of a step-by-step research design used in this study (i.e., sample and data collection, instrumentation, measurement, and structural model analysis) to test the research model.

3.1. Measures and scales

In this study, the survey items for all the variables were primarily adopted and used from existing validated scales. Section 2 provided a basis for the questionnaire design. All items and responses, unless specified otherwise, were measured on a seven-point Likert-type scale with response options from 1 = "*strongly disagree* through 3 = "*neither agree nor disagree*" to 7 = "*strongly agree*". Since the survey questionnaire was distributed in Saudi Arabia, the original survey items were first prepared in English and then translated into Arabic. To ensure translation equivalence, two independent translation experts from the research team back-translated the Arabic version of survey items into English (Mullen, 1995). The designed questionnaire was pre-tested in a rigorous process to check its design, such as if the questions were easily understandable, and that no ambiguity was identified. Burns and Bush (2003) recommend that a pre-test with 5–10 participants is appropriate to identify the issues related to the survey questionnaire's design. Therefore, a pre-test was conducted by two professors and three post-graduate students with extensive professional experience to ensure the face validity and appropriateness of the designed questionnaire for the Saudi context. Then ten professionals reviewed the questionnaire design to determine if there was any difficulty with the Arabic version of the survey questionnaire. Based on several feedback meetings with these professionals, some modifications were suggested in the survey items for consistency of semantic connotations between English and Arabic, and overall readability of the Arabic version. The final draft of the designed questionnaire was used for the pilot study. A pilot sample of 67 non-respondents was randomly chosen to come out with final refinements of the final draft of the survey questionnaire. The reliability of all the variables provided evidence that the Cronbach's alpha and composite reliability coefficients were high (>0.70), indicating adequate reliability of all variables.

To operationalize PACAP, this study adopted the scale proposed by Jansen et al. (2005), based on prior work (Zahra & George, 2002), which is used in similar studies (Sheng & Chien, 2016). PACAP was measured through its operationalized facets including "acquisition" and "assimilation". Five items measured the intensity, speed and direction of efforts expended in acquiring new knowledge relevant to the firm (acquisition) and the extent to which a firm was able to identify, analyze and understand the observed acquired knowledge (assimilation). RACAP was measured to capture the dimensions of "transformation" and "exploitation". Four items assessed conversion efforts to integrate existing and newly acquired external knowledge (transformation) and to identify efforts to apply newly acquired knowledge into their operations to achieve business objectives.

Imitation has not been empirically researched in a large, well-established study using a reliable and valid scale to capture imitation strategy. Previously, imitation has been measured through several proxy variables (Xia & Liu, 2018) or latent constructs based on existing survey items regarding a firm's efforts to be the first to introduce innovative products to the market (Zhou, 2006) or to establish a technological innovation orientation to innovation or imitation (Naranjo-Valencia et al., 2011). To capture imitation strategy, the scale developed by Lee and Tang (2018), which is based on prior work (Schnaars, 1994; Shenkar, 2010), was used. This scale consists of four items that capture the strategic orientation to imitation strategy and assesses a firm's inclination towards copying strategic movements of competitors and adopting similar ideas, products, processes, services, or ways of doing business to pioneers or competitors (Lee & Tang, 2018; Lee & Zhou, 2012; Zhou, 2006). Based on a review of recent research on innovation strategies (i.e., Siguaw et al., 2006; Wei et al., 2014), the scale developed by Lee and Tang (2018) was more relevant to the scope and context of this study and was adopted. The four-item scale assessed a firm's tendency to be creative and receptive to radical new ideas and alternative conceptual approaches (Lee & Tang, 2018).

Prior studies widely defend using a range of performance measures, not only one, and not only financial indicators (Jiménez-Jiménez & Sanz-Valle, 2011). Instead, the literature argues that measuring performance should include both financial as well as market advantage indicators (Camisón & Villar-López, 2011; Chen et al., 2009). Further, in the literature, there is a balance between using both subjective and objective performance measures. Therefore, following previous studies (Camisón & Villar-López, 2011), this study relied on the subjective scale used by Chang (2011) and Chen et al. (2009), which is based on prior work (Barney, 1991). A high correlation between subjective and objective performance measures is evidenced in previous works (Homburg et al., 1999). Hence, there is a balance in research using both perceptual performance measures and objective financial performance measures. Due to several contextual constraints, data privacy, and the scope of this study, sustained competitive advantage (Chang, 2011) was measured on a subjective scale to make the construct more convenient for respondents. This approach has been used numerous times in previous studies (Camisón & Villar-López, 2011; Chen et al., 2009). A six-item scale assessed several dimensions of organizational performance as compared to competitors to reflect sustained competitive advantage.

Following previous studies (Lee & Tang, 2018; Lee & Zhou, 2012; Zhou, 2006), four firm-level control variables were included in the conceptual model that were considered appropriate antecedents of imitation and innovation strategies and sustained competitive advantage (Camisón & Villar-López, 2011; Lee & Tang, 2018; Zhou, 2006). All the control variables were measured as follows: *firm age*, (years of a firm's establishment), a continuous variable between 1 and 16 or above years; *firm size,* (as numbers of employees) using a four-step categorical scale; *annual revenue,* using a four-step categorical scale; and finally, *industry,* using a six-step categorical scale and was transformed as a composite model formed out of six dummy variables. Table 1 depicts the profile of the respondent firms.

3.2. Data collection procedures and sample

The data for analyses were primarily collected from information and communication, service business, oil, gas and petroleum, manufacturing industry, construction, and distribution/logistics business industrial firms in Saudi Arabia. Contact information was obtained from the Saudi General Authority for Statistics database. The list also offers city-wise location and industrial-wise classification of Saudi firms. The sampling frame consisted of technologically advanced firms from multiple industries to ensure generalizability (see Table 1). A team of three local executive MBA students with professional experience was hired and trained for data collection. During the data collection process, maximum efforts were made to ensure that the respondents were central to knowledge management initiatives in their respective firms (Ali, 2021). Following similar previous studies (Ali, 2021; Lee & Zhou, 2012, 2018; Zhou, 2006), simple random sampling was used to select around 500 firms from the database which fulfill respondent criteria. An online e-survey was designed using a free Google Doc, and a link was shared with the potential respondents. Data collection spanned two months (April–May 2019). Due to the nature of e-surveys, the respondents could not proceed to the next question until they had responded to the previous one. In this way, no missing values could exist in the data. A total of 218 responses were received, of which seven were excluded from the dataset because of unengaged responses. Therefore, the final sample comprised 211 firms, which were diversified in terms of firm profiles (i.e., age, size, revenue, and industry type) as shown in Table 1.

Table 1
Profile of the respondent firms.

Characteristics	Classifications	Frequency	Parent (%)
Firm age			
	1–5 years	1	0.47
	6–10 years	79	37.44
	Above 11	131	62.09
Firm size (No. of employees)			
	1–49	46	21.80
	50–200	56	26.54
	201–1000	47	22.27
	Above 1000	62	29.38
Annual revenue			
	Below SAR 4.9 million	67	31.75
	SAR 5 ~ 49.9 million	51	24.17
	SAR 5 ~ 499.9 million	51	24.17
	SAR 500 million & more	42	19.91
Firm ownership			
	Private enterprise	110	52.13
	Public enterprise	44	20.85
	Foreign capital firm	30	14.22
	Joint company	27	12.80
Industry type			
	Oil, gas and petroleum	66	31.28
	Manufacturing industry	19	9.00
	Construction	29	13.74
	Distribution/logistics business	24	11.37
	Information and communication	43	20.38
	Service business	30	14.22

During the preliminary data screening process, this study made several tests to check for sampling biases (Latan, 2018). First, to test for non-response bias, the differences between those who responded early and those who responded later were documented in terms of demographic characteristics and model variables. The *t*-test showed non-statistically significant differences ($p < 0.05$), confirming that differences in the means of two groups of respondents were not related to non-response bias. Second, the homogeneity of variance was examined using Levene's test. The results were shown to be non-statistically significant ($p > 0.05$), confirming equivalent variance in research variables. Furthermore, the *t*-test on the equality of means also showed non-statistically significant results ($p > 0.05$), confirming equal means in the respondents' groups. Finally, checking for common method bias (Podsakoff et al., 2012), a full collinearity approach was used (Kock, 2015). Table 2 provides evidence that the average variance inflation factor (AFVIF) values were not higher than 3.30, confirming no common method bias exists in the data.

3.3. Data analysis

Structural equation modeling (SEM) as an analytical tool via the partial least squares (PLS) approach was used to estimate the structural relationship in the theoretical model (Hair et al., 2017). PLS-SEM is widely accepted as a causal predictive approach with SEM (Hair et al., 2012) and has been used in similar studies (Ali, 2021; Dost et al., 2019; Lee & Tang, 2018; Sousa-Ginel et al., 2017). The following updated guidelines in Cepeda-Carrion et al. (2019) and Latan (2018) provide further justifications for using PLS-SEM in this study. These are the following: First, PLS-SEM is an appropriate approach when examining relatively complex structural relationships concerning the associations among latent variables, where the model being examined is considered in large systems (Latan, 2018). Second, as a prediction-oriented approach, PLS-SEM is valuable when the aim of the research framework is to make predictions and explain the variance in key target constructs (Hair et al., 2012). Third, PLS-SEM is more suitable when the field of research is in the early stage of theory development or for advanced investigation of the associations in structural relationships (Henseler, 2018; Latan, 2018), and thus provides the opportunity to investigate new phenomena (Richter et al., 2015). Finally, recently PLS-SEM has become widely accepted by editors, reviewers, and researchers because of the latest and advanced statistical measures in PLS path modeling and robustness checks available in structural models (Latan, 2018).

Table 2
Measurement model results.

Constructs	Code	SFL	SE	*t*-value [a, b]	VIF	α	ρ_c	ρ_A	AVE [d]
PACAP						0.84	0.86	0.89	0.62
	PACAP1	0.83	0.03	31.24	2.02				
	PACAP2	0.64	0.05	12.00	1.38				
	PACAP3	0.87	0.02	41.46	2.44				
	PACAP4	0.80	0.04	22.91	1.85				
	PACAP5	0.78	0.04	21.06	1.83				
RACAP						0.87	0.87	0.91	0.71
	RACAP1	0.81	0.03	24.81	1.80				
	RACAP2	0.83	0.03	33.28	2.10				
	RACAP3	0.87	0.02	38.35	2.28				
	RACAP4	0.88	0.02	48.10	2.45				
Imitation strategy						0.78	0.79	0.86	0.60
	IMI1	0.78	0.03	23.84	1.43				
	IMI2	0.76	0.05	16.42	1.77				
	IMI3	0.82	0.03	26.60	1.93				
	IMI4	0.75	0.05	16.45	1.49				
Innovation strategy						0.85	0.86	0.90	0.69
	INN1	0.86	0.02	43.72	2.24				
	INN2	0.81	0.04	23.11	1.93				
	INN3	0.80	0.03	23.41	1.79				
	INN4	0.85	0.02	39.94	2.02				
Sustained competitive advantage						0.90	0.91	0.92	0.67
	SCA1	0.84	0.02	35.30	2.32				
	SCA2	0.85	0.02	36.40	2.51				
	SCA3	0.79	0.03	25.82	1.99				
	SCA4	0.81	0.03	26.84	2.16				
	SCA5	0.78	0.04	21.74	1.99				
	SCA6	0.84	0.03	28.48	2.40				
Control variables									
Firm's age	Age	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Firms' size	Size	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Firm's revenue	Revenue	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Industry type	Industry	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00

Note: SFL = Standard factor loadings; SE = Standard error; [a] Test-statistics are obtained by 500 Bootstrap runs; [b] Absolute *t*-values > 1.96 are two-tailed significant at 5 percent; α = Cronbach's Alpha; ρ_c = Composite reliability; ρ_A = Dijstra-Henseler's rho; AVE = Average variance extracted; [d] Percentage of variance of item explained by the latent variable.

4. Results

This study used SmartPLS 3.3.0 software (Ringle et al., 2015) for the structural relationships in the model (Fig. 1). The PLS algorithm was selected as default settings such as a weighting scheme (path) while the maximum number of iterations was set to 300 (Latan, 2018). The levels of significance of the beta coefficients, *t*-statistics, *p*-values, as well as the corresponding 95 percent bias-correlated and accelerated (BCa) bootstrap confidence intervals, were obtained by selecting the PLS algorithm bootstrapping procedure with 5,000 subsamples using no sign changes (Hair et al., 2017). Reporting the results of PLS-SEM consists of analyzing the measurement and structural models. The measurement model was assessed using reliability and validity by evaluating the individual item and construct reliability and convergent and discriminant validity. This assessment of the structural model was checked against the standard guidelines provided by Hair et al. (2017).

4.1. Measurement model

The measurement model was estimated and draws on the recommendations found in Hair et al. (2017). The threshold values applied during the evaluation of the measurement model are as follows:

Reliability.

- The reliability of individual items is measured through examining standardized factor loading (SFL) index of equal to or>0.50 or 0.70 (Hair et al., 2017; Latan, 2018), while significance of each SFL is confirmed by examining *t*-statistic of ≥ 1.96 with 5 % level of significance and using a two-tailed test approach (Roldán & Sánchez-Franco, 2012).
- The reliability of each variable (internal consistency) is measured through several indices such as Cronbach's alpha (α), Dijkstra-Henseler's rho (ρA), and composite reliability (ρ_c) ≥ 0.70 (Hair et al., 2017).

Convergent validity.

- Convergent validity is measured by examining an average variance extracted (AVE) value equal to or>0.50 (Fornell & Larcker, 1981; Hair et al., 2017; 2018).

Discriminant validity.

- Discriminant validity is measured through examining several analyses such as the Fornell-Larcker criterion, which suggests that the square root of AVE is greater than the correlation among latent variables (Hair et al., 2017), and the heterotrait–monotrait (HTMT) ratio of correlations approach, which suggests that HTMT index is greater than $HTMT_{0.85}$ or $HTMT_{0.90}$ (Henseler et al., 2015).

Data in Table 2 and Table 3 confirm that the measurement model fulfilled all the minimum requirements. The results show that all SFL were ranged between 0.64 and 0.88 and were statistically significant at $p < 0.001$, indicating that the measurement model possessed acceptable individual item reliability. The assessment of construct reliability provided evidence in Table 2 that the values of α ranged between 0.78 and 0.90, the values of ρ_A ranged between 0.86 and 0.92, and the values of ρ_c ranged between 0.79 and 0.91, indicating that the measurement model possessed acceptable construct reliability (internal consistency). The assessment of AVE provided evidence in Table 2 that the values of AVE of all five latent variables ranged between 0.60 and 0.71. Therefore the

Table 3
Mean, standard deviations, correlations and discriminant validity results.

Construct	Mean	SD	VIF	1	2	3	4	5	6	7	8	9
1. **PACAP**	3.85	0.93	3.38	***0.79***	0.59	0.41	0.79	0.77	0.08	0.17	0.14	*F*
2. **RACAP**	3.87	1.01	2.92	0.69**	***0.85***	0.50	0.78	0.80	0.03	0.20	0.10	*F*
3. **Imitation strategy**	3.34	1.07	1.43	0.39**	0.38**	***0.78***	0.46	0.52	0.05	0.05	0.07	*F*
4. **Innovation strategy**	3.81	1.04	3.03	0.58**	0.58**	0.50**	***0.83***	0.83	0.04	0.18	0.09	*F*
5. **Sustained competitive advantage**	3.73	1.00	2.58	0.56**	0.59**	0.36**	0.71**	***0.82***	0.04	0.14	0.12	*F*
6. **Firm age**	1.71	0.84	1.05	−0.04	0.02	−0.04	0.04	0.01	***1.00***	0.16	0.21	*F*
7. **Firm size**	2.59	1.13	1.59	0.17*	0.18**	−0.02	0.17*	0.13	0.16*	***1.00***	0.57	*F*
8. **Firm revenue**	2.32	1.12	1.53	0.10	0.08	0.01	0.09	0.11	0.41**	0.57**	***1.00***	*F*
9. **Industry type**	3.00	1.77	1.13	−0.19**	−0.19**	−0.11	−0.16*	−0.28**	−0.01	−0.21**	−0.18*	*F*

Note: Significance levels: $p < 0.05$*; $p < 0.01$**; SD = Standard deviation;Diagonal and italicized elements are the square roots of the AVE (average variance extracted)
;
Below the diagonal elements are the correlations between the constructs values;
Above the diagonal elements are the HTMT values;
F: Formative composite construct; HTMT is not meaningful criterion for formative construct.

measurement model possessed acceptable convergent validity. Finally, consistent with the Fornell-Larcker criterion, evidence provided in the lower-left half of Table 3 shows that the score of the AVE's square root for each variable exceeded the related inter-construct correlations in the latent variable correlation matrix between each variable and the other variables in the structural model. Also, as the HTMT ratio of correlations criterion is considered a better estimator of deattenuated (perfectly reliable) correlations between variables than other techniques (Franke & Sarstedt, 2019). The results of HTMT values, as shown in the upper-right half of Table 3, were significantly smaller than the recommended rule of thumb. The results of these analyses suggested that the measurement model possessed acceptable discriminant validity.

4.2. Structural model

The structural model was estimated using guidelines from Hair et al. (2017). The threshold values applied during the evaluation of the structural model are as follows:

- For examining collinearity in a structural relationship, a minimal threshold VIF value in the range between 3.3. and 5 is acceptable (Hair et al., 2017).
- For examining the predictive relevance Q^2 through blindfolding, Q^2 value is supposed to be greater than zero (Hair et al., 2017).
- For calculating the coefficient of determination (R^2 value), the following rules are followed: R^2 value of $\geq$ 0.25, $\geq$0.50, and $\geq$ 0.75 are considered weak, moderate, and substantial, respectively.

The results in Fig. 2 and Table 2 provide evidence that the collinearity in the structural relationships was not a concern as VIF were<5 for all the set of predictors, indicating no vertical or lateral collinearity between independent and dependent variables (Latan, 2018). Next, the predictive relevance Q^2 via blindfolding technique was assessed. The results in Table 4 provide evidence that the values of $Q^2_{(RACAP)}$ = 0.36, $Q^2_{(Imitation\ strategy)}$ = 0.15, $Q^2_{(Innovation\ strategy)}$ = 0.43, and $Q^2_{(Sustained\ competitive\ advantage)}$ = 0.37, were considerably larger than zero, suggesting the predictive relevance of structural relationship in terms of out-of-sample prediction (Hair et al., 2017). Finally, the Q^2 values were supported by calculating the coefficient of determination (R^2 value). The results in Table 4 provide evidence that

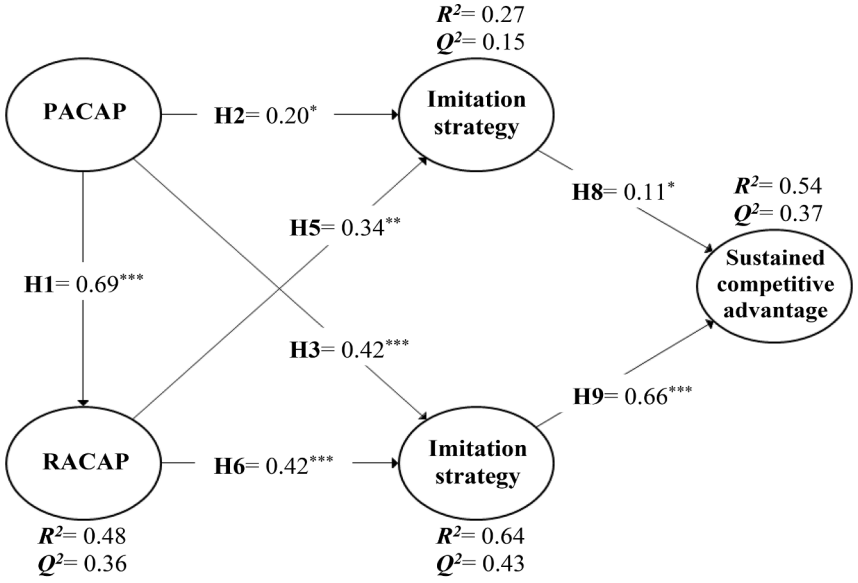

Fig. 2. Structural model results. **Note:** *t*-values in the bracket. The results of control variables are reported in Table 4.

Table 4
Structural model results.

Variables	RACAP $Q^2 = 0.36$ $R^2 = 0.48$			Imitation strategy $Q^2 = 0.15$ $R^2 = 0.27$			Innovation strategy $Q^2 = 0.43$ $R^2 = 0.64$			Sustained competitive advantage $Q^2 = 0.37$ $R^2 = 0.54$		
	Path coefficients	95 % BCa confidence interval	Effect size (f^2)	Path coefficients	95 % BCa confidence interval	Effect size (f^2)	Path coefficients	95 % BCa confidence interval	Effect size (f^2)	Path coefficients	95 % BCa confidence interval	Effect size (f^2)
Control variables												
Firm's age				−0.10	[-0.21, 0.00]	0.01	−0.01	[-0.08, 0.06]	0.00	0.05	[-0.04, 0.14]	0.01
Firms' size				−0.11	[-0.24, 0.03]	0.01	0.03	[-0.05, 0.12]	0.00	−0.05	[-0.14, 0.04]	0.00
Firm's revenue				0.05	[-0.07, 0.18]	0.00	−0.01	[-0.09, 0.08]	0.00	0.03	[-0.06, 0.12]	0.00
Industry type				−0.02	[-0.16, 0.12]	0.00	0.01	[-0.05, 0.12]	0.00	−0.16	[-0.28, −0.01]	0.06
Direct effects												
PACAP	0.69***	[0.59, 0.77]	0.91	0.20*	[0.01, 0.40]	0.02	0.41***	[0.27, 0.57]	0.05			
RACAP				0.34**	[0.13, 0.53]	0.14	0.42***	[0.25, 0.58]	0.15			
Imitation strategy										0.11*	[0.02, 0.20]	0.02
Innovation strategy										0.66***	[0.57, 0.75]	0.72

Note: $|t| \geq 1.65$ at p 0.05 level; ** $|t| \geq 2.33$ at p 0.01 level; *** $|t| \geq 3.09$ at p 0.001 level; S.E = Standard error; BCa = Bias-corrected and accelerated.
R^2 = Determination coefficients; Q^2 = Predictive relevance of endogenous (omission distance = 7).
Threshold for R^2 value ≥ 0.25 (weak); ≥ 0.50 (moderate); ≥ 0.75 (substantial).
Threshold for Q^2 value > 0 indicate predictive relevance.

the values of $R^2_{(\text{RACAP})} = 0.48$, $R^2_{(\text{Imitation strategy})} = 0.27$, $R^2_{(\text{Innovation strategy})} = 0.64$, and $R^2_{(\text{Sustained competitive advantage})} = 0.54$, were considerably larger and acceptable in social science and behavioral research, demonstrating the predictive relevance of the structural relationship in terms of out-of-sample prediction (Hair et al., 2017) and are consistent with previous research in this area (Ali, 2021; Lee & Tang, 2018).

4.3. Hypothesis testing

This following threshold values were applied when hypothesis testing was performed:

- The significance of path coefficients is determined by applying the bootstrapping approach. During the bootstrapping process, 5,000 bootstrap samples, 211 bootstrap cases, and no sign changes were used to obtain t-statistics, standard errors, p-values, 95 percent bias-corrected confidence intervals. The levels of significance are as follows: *t (0.05, 4999) = 1.645; **t (0.01, 4999) = 2.327; ***t (0.001, 4999) = 3.092; *$p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; one-tailed test (Hair et al., 2017; Latan, 2018; Roldán & Sánchez-Franco, 2012).
- The effect size: f^2 of 0.02, 0.15, and 0.35 is considered weak, moderate, and strong, respectively.

The results in Table 4 provide evidence that none of the control variables (firm's age, size, annual revenue, and industry type) had a significant effect ($p > 0.05$) on imitation strategy, innovation strategy, or sustained competitive advantage. These results are consistent with previous similar studies (Lee & Tang, 2018) and suggest that control variables did not affect the robustness of structural relationships.

As illustrated in Table 4, the path coefficient for PACAP was positive and significant on PACAP (H1; $\beta = 0.69$, $t = 13.32$, $p < 0.001$, $f^2 = 0.91$), which supported H1. This result is consistent with previous empirical studies (Ali & Park, 2016; Leal-Rodríguez et al., 2014b). The path coefficients for PACAP were positive and significant on imitation strategy (H2; $\beta = 0.20$, $t = 1.69$, $p < 0.05$, $f^2 = 0.02$), and innovation strategy (H3; $\beta = 0.42$, $t = 4.62$, $p < 0.001$, $f^2 = 0.14$), which supported H2 and H3, respectively. As predicted by H4, the effect of PACAP is stronger on innovation than imitation, as a t-test comparison analysis of their path coefficients provided evidence that PACAP had a stronger effect on innovation than on imitation (H4; $\beta = 0.21$, $t = 7.00$, $p < 0.001$), which supported H4. The effect size assesses a variance explained for each predictor in the structural model. The analysis of effect size (f^2) provides evidence regarding the relative impact of a predictor (independent) construct on a dependent construct (Hair et al., 2017). It enables comparison between different hypotheses while also assessing whether a predictor variable has a substantive influence on the dependent variable's R^2. The effect size (f^2) values of 0.02, 0.15, and 0.35 denote small, medium, and large effect sizes (Chin, 1998). The values of effect size f^2 were measured using the following formula: $f^2 = (R^2_{included} - R^2_{excluded})/(1 - R^2_{included})$. The effect size of PACAP on innovation strategy was also stronger than on imitation strategy, which further confirmed H3. These results align with previous research in this area (Fosfuri & Tribó, 2008; Jansen et al., 2005; Song, 2015; Sheng & Chien, 2016; Tsai, 2001). The empirical results also show that the path coefficients for RACAP were positive and significant on imitation strategy (H5; $\beta = 0.34$, $t = 2.78$, $p < 0.01$, $f^2 = 0.05$), and innovation strategy (H6; $\beta = 0.42$, $t = 4.23$, $p < 0.001$, $f^2 = 0.15$), which supported H5 and H6, respectively.

Consistent with H7, the effect of RACAP was stronger on innovation than imitation, as a t-test comparison analysis of their path coefficients provided evidence that RACAP had a stronger effect on innovation than on imitation (H7; $\beta = 0.08$, $t = 4.00$, $p < 0.01$), which supported H7. The effect size of RACAP on innovation is also stronger than on imitation, which further confirmed H7. These results are in line with previous research in this area (Cepeda-Carrion et al., 2012; Fosfuri & Tribó, 2008; Jansen et al., 2005; Jiménez-Barrionuevo et al., 2011; Leal-Rodríguez

et al., 2014b; Song, 2015; Zapata-Cantu et al., 2020).

Next, the path coefficients for both imitation strategy (H8; $\beta = 0.11$, $t = 2.08$, $p < 0.05$, $f^2 = 0.02$) and innovation strategy (H9; $\beta = 0.66$, $t = 11.62$, $p < 0.001$, $f^2 = 0.72$) were positive and significant on sustained competitive advantage, which supported H8 and H9, respectively. Finally, consistent with *H*10, the effect of innovation strategy on sustained competitive advantage was stronger than that of imitation strategy, because a *t*-test comparison analysis of two path coefficients provided evidence for the assertion (*H*10; $\beta = 0.55$, $t = 15.00$, $p < 0.001$), which supported *H*10. The comparison of their effect sizes showed that the effect size of innovation strategy on sustained competitive advantage was stronger than the effect size of imitation strategy on sustained competitive advantage, which further confirmed *H*10. These results align with previous research in this area (Ali, 2021; Lee & Tang, 2018; Lee & Zhou, 2012; Song, 2015; Zhou, 2006).

4.4. Robustness tests

Scholars suggest several tests of robustness of the research model while reporting the results of PLS-SEM (Latan, 2018). Hence, to ensure the robustness of the main results, several complementary analyses were performed to confirm that all the structural relationship results were unbiased and free of potential errors. First, endogeneity is likely to be present in studies of cause-and-effect relationships (Jean et al., 2016; Latan et al., 2020; Ullah et al., 2021). Endogeneity bias may arise because of several causes such as the influence of omitted variables, measurement errors, reverse causality, or other potential errors (e.g., sample-selection bias) (Ullah et al., 2021). Following similar studies (Latan et al., 2020), a Heckman test using a two-step technique was performed using Stata software (Ullah et al., 2021). In the first step, the relationships between variables were examined without controlling for endogeneity bias. In the second step, a third variable in the equation was included to control the effects of endogeneity bias. For instance, in the case of PACAP → Imitation strategy (selection DV = Innovation strategy; IV = RACAP) suggests that in the first step, DV = Imitation strategy; IV = PACAP while in the second step DV = Innovation strategy; IV = RACAP as shown in Table 5. Table 5 shows the endogeneity test results, suggesting that endogeneity bias was not a potential threat to the PLS-SEM results. Second, since survey data for this study were collected from a single population, detecting unobserved heterogeneity bias is recommended. Using a finite mixture partial least squares (FIMIX-PLS) approach, unobserved heterogeneity bias was detected within the survey data and concluded that the survey data were valid, generalizable, and acceptable. Finally, employing an importance-performance matrix analysis (IPMA) in this study extends the results of PLS-SEM by comparing the importance-performance of each predecessor variable in the structural relationship and offers solutions for future implications (Hair et al., 2017). The results of IPMA in Fig. 3 and Table 6 show that a unit increase in innovation strategy performance from 70.37 to 71.37 will improve sustained competitive advantage performance by 0.64 points. Similar, PACAP (0.32), RACAP (0.32), and imitation strategy (0.11) have relative importance regarding achieving the high level of sustained competitive advantage.

Table 5
Endogeneity test.

Structural path	Path coefficients	SD	*p*-value	z	conclusion
PACAP → Imitation strategy	0.24*	0.12	0.05	1.89	Not different
PACAP → Innovation strategy	0.45***	0.08	0.00	5.30	Not different
PACAP → Imitation strategy	0.34**	0.11	0.00	2.97	Not different
RACAP → Innovation strategy	0.45***	0.00	0.00	5.78	Not different
Imitation strategy → Sustained competitive advantage	0.40***	0.05	0.00	6.96	Not different
Innovation strategy → Sustained competitive advantage	0.69***	0.05	0.00	15.24	Not different

Note: DV = Dependent variable in second step; IV = Independent variable in second step; SD = Standard deviation; $|z| \geq 1.65$ at p 0.05 level; $^{**}|z| \geq 2.33$ at p 0.01 level; $^{***}|z| \geq 3.09$ at p 0.001 level.

5. Discussion, conclusion, limitations, and future research

5.1. Discussion of results

The research question of this study is as follows: To what extent do the two dimensions of ACAP (i.e., PACAP and RACAP) associate with each other and influence the effect of organizational innovation (imitation versus innovation strategy) on a firm's competitive advantage? In answering this question, this study contributes to existing theory (Lieberman & Asaba, 2006; Shenkar, 2010) and empirical studies (Ali, 2021; Doha et al., 2018; Lee & Tang, 2018) regarding imitation and innovation. The findings enable a better understanding of the relationship between PACAP and RACAP and how they each influence imitation and innovation strategies. Each strategy directly and differentially affects a firm's sustained competitive advantage.

The findings of this study also provide additional empirical evidence that PACAP has a positive effect on RACAP (H1) (Ali & Park, 2016; Leal-Rodríguez et al., 2014a, b). Though the sample firms of this study are similar to those in previous studies (Ali & Park, 2016; Leal-Rodríguez et al., 2014a), the results for H1 show a higher effect than previous studies. One of the possible justifications for this finding is that Saudi Arabia is in a transition stage, and the effect of PACAP on RACAP may well be greater in an emerging economy than a mature economy (Kim, 1997). This study proposed and found that PACAP has a positive direct effect on both imitation strategy (H2) and innovation strategy (H3) and that PACAP has a stronger positive effect on innovation strategy than on imitation strategy (H4). These findings are in line with previous studies (Sheng & Chien, 2016) and provide a similar pattern of results. Second, this study also hypothesized and found that RACAP has a positive direct impact on both imitation strategy (H5) and innovation strategy (H6) and that RACAP has a stronger positive impact on innovation strategy than on imitation strategy (H7). These findings are consistent with previous studies and provide a similar trend of results to Sheng and Chien (2016). Hence, this study highlights the antecedent role of knowledge-based capabilities such as ACAP, which is crucial for developing innovation-based capabilities such as imitation and innovation. Furthermore, the findings in H2–H7 are consistent with previous conceptual and theoretical studies (Kim, 1997, Shenkar, 2010) and empirical studies (Ali, 2021; Ali & Park, 2014; Song, 2015; Zapata-Cantu et al., 2020). These results contribute to calls for research that focuses more on the behavior domain than the technical domain of ACAP (Gao et al., 2017) and the impact of the behavior domain of ACAP on non-technological innovation such as imitation and innovation strategy (Ali, 2021; Lee & Tang, 2018). The results of this study contribute to both knowledge and innovation research (Dost et al., 2019; Nataraajan, 2016).

In addition, this study proposed and found that both imitation strategy (H8) and innovation strategy (H9) positively affect sustained competitive advantage. Innovation strategy, relative to imitation strategy, contributes more to sustained competitive advantage (*H*10). Hence, this study contributes to previous studies and confirms that both imitation and innovation strategies are equally important to achieve a high level of competitive advantage (Ali, 2021; Doha et al., 2018; Jahanshahi & Brem, 2020; Lee & Tang, 2018; Mena & Chabowski, 2015; Wei et al., 2014). The results in H9 and *H*10 are higher while H8 is slightly lower than in the studies by Ali (2021) and Lee and Tang (2018).

The robustness of the main results was confirmed by several tests.

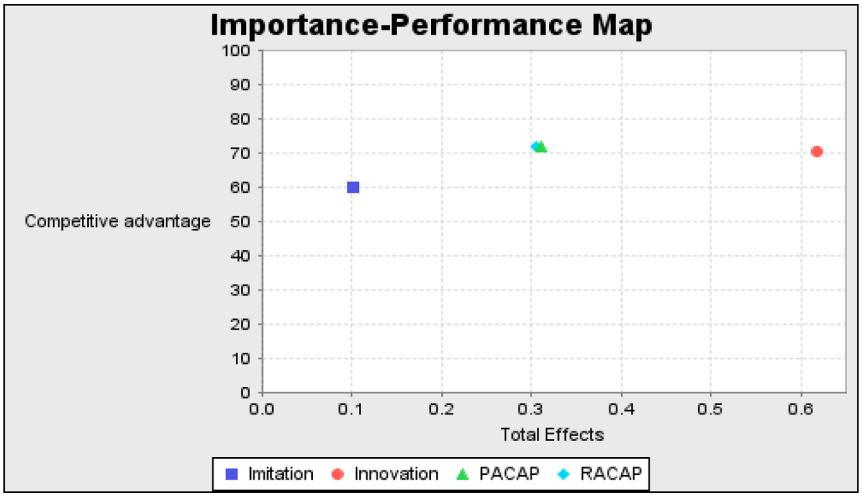

Fig. 3. Importance–performance map analysis for sustained competitive advantage.

Table 6
IPMA analysis results for sustained competitive advantage.

Target construct:	Sustained competitive advantage	Importance	Performance
Innovation strategy		0.64	70.37
PACAP		0.32	71.80
RACAP		0.32	71.77
Imitation strategy		0.11	59.65

The endogeneity test suggested no potential bias threat to the results. The analysis of FIMIX-PLS did not suggest the existence of unobserved heterogeneity within the survey data. Finally, IPMA results suggested that innovation strategy was the main potential area of improvement as it is highly relevant for achieving sustained competitive advantage due to its major impact.

5.2. Implications for theory

The findings of this study provide several significant contributions to the literature. First, until now, few studies have examined how the two dimensions of ACAP (i.e., PACAP and RACAP) are associated with each other (Ali & Park, 2016; Jansen et al., 2005; Leal-Rodríguez et al., 2014a, b). The PACAP–RACAP association has usually been investigated in the industrialized economies context, while this study confirms that the effect of PACAP on RACAP is equally important in an emerging economy context. Second, until now, no study has examined how the two dimensions of ACAP drive firms to emphasize imitation and innovation strategies differently (Ali, 2021; Lee & Tang, 2018). Using the theoretical frameworks of ACAP and innovation, this study develops and tests an integrating model to verify the direct impact of PACAP and RACAP on imitation strategy and innovation strategy. This study's findings also provide a thorough understanding of the comparative impact of PACAP on innovation strategy compared to imitation strategy. These findings are unique and crucial to demonstrate how a firm's assessment of PACAP and RACAP contributes to imitation and innovation strategies. Further, these findings echo the multidimensional nature of ACAP (Zahra & George, 2002) in that PACAP and RACAP are fundamentally distinct dimensions and involve different strategies, structure, and objectives (Ali & Park, 2016; Jansen et al., 2005; Leal-Rodríguez et al., 2014a, b). As such, results from this study simultaneously contribute to both knowledge and innovation theories (Ali, 2021; Dost et al., 2019; Nataraajan, 2016).

This study also enriches the literature by distinguishing imitation strategy from innovation strategy. Previously, literature on innovation has widely admired the role of innovation as a crucial strategy for long-term success (Khosravi et al., 2019), and for being one of the fundamental and sustainable competitive advantages of firms (Camisón & Villar-López, 2011; Khosravi et al., 2019). This study's findings indicate that imitation is an alternative smart strategy for the use of innovation capabilities to foster sustained competitive advantage (Ali, 2021; Lee & Tang, 2018; Lee & Zhou, 2012). This finding extends previous studies (Ali, 2021; Doha et al., 2018; Lee & Tang, 2018) by differentiating imitation strategy from innovation strategy and empirically examining each strategy's direct role to lead a sustained competitive advantage. The finding also provides a thorough understanding of the relative differential effect of imitation strategy and innovation strategy on sustained competitive advantage.

On the one hand, this result further supports previous empirical findings on imitation and innovation strategies (Ali, 2021; Lee & Tang, 2018). On the other, it provides empirical evidence for qualitative studies that conceptually discuss imitation versus innovation (Kim, 1995; 1998). Finally, this study adopted what is believed to be an interesting focus, where imitation is considered and valued as being an equal to innovation rather than carrying a negative connotation.

5.3. Implications for practice

Along with theoretical contributions, this study provides several implications for practitioners. First, the findings of this study provide several practical insights into how two dimensions of PACAP and RACAP are associated and affect the extent to which a firm is imitative or innovative and whether pursuing both an imitation strategy and innovation strategy foster sustained competitive advantage. Specifically, both imitation and innovation strategies are viable platforms when PACAP and RACAP are prevalent, primarily in emerging countries. However, Zhou (2006) concludes that when evaluating imitation versus innovation, an innovation strategy may be a better choice for firms in emerging economies. Nonetheless, several studies (Ali, 2021; Doha et al., 2018; Lee & Tang, 2018; Lee & Zhou, 2012), including this one, conclude that both imitation and innovation strategies can bring substantially higher returns to firms. Though the advantage of following an innovation strategy is substantial, the benefits of following an imitation strategy cannot not be ignored, particularly when a firm has few resources.

In many cases, firms are reluctant to invest in innovation projects because they involve high research and development costs and risk. This is one reason why firms may turn to an imitation strategy, mimicking other firms in an attempt to take advantage of their innovation efforts. It is recommended that managers understand not only the importance of

an innovation strategy, but that an imitation strategy can be equally as important in developing organizational capabilities that lead to sustained competitive advantage.

Knowledge-based capabilities such as ACAP play a crucial role in the occurrence of both imitation and innovation strategies. In particular, practitioners should pay special attention to PACAP and RACAP, given that they are determinants of both imitation and innovation strategies. Imitation strategy is also an important source of sustained competitive advantage. This study recommends that both imitation and innovation strategy foster the development of sustained competitive advantage. Therefore, as recommended by this study, practitioners should strive to understand new product, process, or management development from an innovation perspective and an imitation perspective.

Finally, previous studies have recognized the contributions of both technical and non-technical factors that enhance absorptive capacity (Ali & Park, 2014). Acquiring technical factors to enhance absorptive capacity may take a long time and require large human and financial resources, but non-technical and organizational factors can also promote absorptive capacity, such as human capital, human resources, organizational culture, processes and routines, information, and knowledge. These are internal factors that are more easily controlled. Saudi Arabia is undergoing a tremendous transformation from an oil-based economy towards a more advanced and post-industrialized economy. Drawing on the findings of previous studies (Ali et al., 2018; 2020), this study recommends that Saudi Arabia start to enhance absorptive capacity from non-technical organizational factors (Ali & Park, 2014), which is a viable strategy in the local context.

5.4. Study limitations and future work

In any empirical study, limitations that offer opportunities for future research should be addressed. Several limitations to this study require attention and future research investigation. First, although all the proposed hypotheses were confirmed, this study is in the early stages of theory development and testing. It is a somewhat exploratory first step towards future research on the association between organizational learning, imitation, innovation, and organizational performance. Second, this study differentiates between the dimensions of ACAP as they are used in the model. This study's findings point to a few additional avenues for future research to examine which other aspects and typologies of organizational learning capability (Jerez-Gomez et al., 2005) and knowledge management capability (Cegarra-Navarro et al., 2016) may potentially affect the structural relationship in this study.

Furthermore, the study of mediation and moderation mechanisms would also be expected to be productive in future studies. Third, concerns about generalizability should not be underestimated. This study was conducted in the specific context of Saudi Arabia, which was considered suitable as the country is currently undergoing a tremendous transformation from an oil-based economy towards a more advanced and post-industrialized economy. The applicability of findings to other economies requires future investigation. Future research in the Middle East and North Africa (MENA) region and in other emerging economies would increase the generalizability of the findings and expand the scope of this study. Fourth, a well-established and validated scale of sustained competitive advantage (Chen et al., 2009; Chang, 2011) is used, but this scale is still subjective. Previous studies encourage both subjective and objective measures of performance (Homburg et al., 1999). Future research may use an objective measure of performance in addition to the subjective-based scale of performance. Fifth, using longitudinal data in future studies may help capture variation in firm performance before, during and after changes in ACAP and imitation and innovation studies. Finally, the current study's relatively small sample size and necessity of collecting data from single respondents may raise the issue of bias in the data. Though this study confirms that PLS path modeling could deal with the issue of small sample size, and despite there being no issues of data bias, it is suggested that future studies replicate this study's findings, possibly using multiple informants and a larger sample.

CRediT authorship contribution statement

Mohammad A Algarni: Writing – review & editing, Writing – original draft, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Murad Ali:** Writing – review & editing, Writing – original draft, Visualization, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Antonio L. Leal-Rodríguez:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Gema Albort-Morant:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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The Arabic version of the survey questionnaire can be asked upon request.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jbusres.2023.113674.

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