International Review of Management and Marketing

ISSN: 2146-4405

available at http: www.econjournals.com

International Review of Management and Marketing, 2024, 14(5), 140-150.

The Impact of Strategic Entrepreneurship on Sustainable Competitive Advantage: A Field Research in Egypt's Petrochemicals and Energy Sector

Nahla G. A. Arabi[1]*, Noha Khalifa Seddig Ahmed[2]

[1]Department of Business Administration, Faculty of Art and Science, Jouf University, Al Quriat, Saudi Arabia, [2]Department of Management, Faculty of Business Administration, University of Tabuk, Tabuk, Saudi Arabia. *Email: nahlagad3@gmail.com

Received: 21 April 2024 **Accepted:** 03 August 2024 **DOI:** https://doi.org/10.32479/irmm.16786

ABSTRACT

The purpose of this research is to examine the impact of the strategic entrepreneurship, on sustainable competitive advantage in Egyptian's petrochemicals and energy sector. The study adopts the quantitative approach specifically for the verification of hypotheses, by using the questionnaire to collect data from a sample of 500 senior managers. The results reveal that there is a statistically significant correlation between the five variables strategic entrepreneurship under study, namely: continuous innovation, Opportunity-Based Mindset, Proactive Behavior, Risk Taking, Value Creation, and sustainable competitive advantage, as the correlation coefficient recorded a significant positive correlation between strategic entrepreneurship and sustainable competitive advantage, as it amounted to (0.687**). According to multiple regression analysis, the researchers found that value creation capabilities has a strong predictive value for competitive advantage and continuous innovation has the lowest predictive value, accordingly the study recommends that a more effective policy for enhancing strategic entrepreneurship generally and continuous innovation specifically should be formulated in Egyptian's petrochemicals and energy sector.

Keywords: Strategic Entrepreneurship, Sustainable Competitive Advantage, Egypt, Petrochemicals and Energy Sector
JEL Classifications: L26; M10; Q01

1. INTRODUCTION

The intersection of strategic entrepreneurship and sustainable competitive advantage is particularly significant. Firms that effectively blend entrepreneurial and strategic activities are better positioned to achieve long-term success. They can continually adapt and innovate while also building robust strategic frameworks that protect and sustain their competitive advantages (Hitt et al., 2011).

Strategic entrepreneurship involves identifying and exploiting new opportunities while simultaneously leveraging strategic management to sustain these innovations within the broader organizational framework (Morris et al., 2021). This approach enables firms to be agile, responding swiftly to market changes and technological advancements, which is critical in maintaining relevance and competitive advantage. Firms that excel in strategic entrepreneurship are able to innovate continuously, creating new value propositions that differentiate them from competitors (Clark and Covin, 2021).

Sustainable competitive advantage, on the other hand, refers to the ability of a firm to maintain its competitive edge over rivals in the long term. It involves creating and delivering value in ways that are difficult for competitors to replicate, ensuring the firm's market position is durable (Barney and Hesterly, 2021). (Naeiji and Siadat, 2019) state that the strategic entrepreneurship involves the five dimensions of continuous innovation, opportunity-based mindset, proactive behavior, risk-taking and value-creation.

Among the dimensions, continuous innovation, an opportunity-based mindset and risk-taking are more related to opportunity exploration, while proactive behavior and value creation relate more to opportunity exploitation.

Strategic entrepreneurship blends the opportunity-seeking behaviors characteristic of entrepreneurship with the advantage-seeking actions of strategic management, fostering continuous innovation while maintaining competitive positioning (Kuratko et al., 2020). This dual focus is essential in today's rapidly evolving business environment, where adaptability and strategic foresight are key to sustained success.

The interplay between strategic entrepreneurship and sustainable competitive advantage is particularly significant in achieving enduring success. Firms that effectively combine entrepreneurial initiatives with strategic management practices are better positioned to adapt to changes and sustain their competitive advantages. This integration allows them to harness the benefits of innovation while ensuring that these innovations are strategically managed and protected (Hitt et al., 2022).

In addition, In the current business landscape, characterized by rapid technological advancements and shifting consumer preferences, the ability to achieve and sustain a competitive advantage through strategic entrepreneurship is more critical than ever.

While studies in tis the field of strategic management, entrepreneurship, and sustainable competitive advantage field have been often conducted by earlier scholars, research dealing with the effect of strategic entrepreneurship on sustainable competitive advantage remain largely underexplored. Thus, this study aims at expanding the theoretical scope of strategic entrepreneurship and its effect on sustainable competitive advantage.

The results can be used to gain sustainable competitive advantage through Strategic entrepreneurship.

2. LITERATURE REVIEW

2.1. Strategic Entrepreneurship

Strategic entrepreneurship combines opportunity-seeking and advantage-seeking behaviors to enhance firm performance (Hitt et al., 2012). (Ireland et al., 2003) laid the groundwork by defining strategic entrepreneurship as the integration of entrepreneurial (exploration) and strategic (exploitation) actions, which firms use to identify and exploit opportunities while maintaining a competitive edge.

Innovation is a central theme in strategic entrepreneurship. (Kuratko and Audretsch, 2013) emphasized the role of innovation as a driver of strategic entrepreneurship, arguing that firms must continuously innovate to stay competitive. They highlighted that strategic entrepreneurship involves not just the creation of new products and services but also the transformation of business models and processes.

Research by (Covin and Mille, 2014) supported this view, demonstrating that entrepreneurial firms that strategically align their innovation efforts with market demands outperform their less entrepreneurial counterparts. This alignment helps firms to capitalize on emerging opportunities and sustain their competitive advantage.

(Teece, 2014) extended the discussion by linking strategic entrepreneurship to dynamic capabilities. He argued that firms need dynamic capabilities to sense and seize new opportunities and reconfigure their resources to adapt to changing environments. This perspective highlights the importance of agility and flexibility in strategic entrepreneurship.

(Zahra et al., 2015) further explored the role of dynamic capabilities in fostering strategic entrepreneurship, emphasizing that firms with strong dynamic capabilities are better positioned to engage in strategic entrepreneurship. They posited that these capabilities enable firms to effectively respond to environmental changes and leverage new opportunities for growth.

In the context of emerging markets, (Bruton et al., 2015) discussed how firms use strategic entrepreneurship to navigate institutional voids and exploit new market opportunities. They found that strategic entrepreneurship allows firms in emerging markets to overcome institutional challenges and achieve competitive advantages.

Corporate entrepreneurship, a subset of strategic entrepreneurship, has been a focus of recent studies. (Birkinshaw, 2018) discussed the concept of strategic renewal, wherein established firms undertake entrepreneurial activities to renew their strategies and adapt to market changes. This process involves both explorative and exploitative actions to balance innovation with operational efficiency.

Strategic alliances and networks play a crucial role in strategic entrepreneurship. (Lavie et al., 2012) explored how strategic alliances enable firms to access new resources and capabilities, facilitating entrepreneurial ventures. Their research indicated that alliances with diverse partners enhance a firm's ability to innovate and adapt strategically.

Recent research has also focused on measuring the impact of strategic entrepreneurship on firm performance. (Morris et al., 2020) developed a comprehensive framework to assess the outcomes of strategic entrepreneurial activities, emphasizing metrics such as innovation output, financial performance, and market position.

2.1.1. Continuous innovation

Continuous innovation is an innovation process and activity performed continuously, regularly, repeatedly, in an extended period, which results in beneficial impact for a company. In extension, it will create a learning culture, of which an organization has the purpose to continuously improve and self-renew to adapt to the ever-changing consumers' need in the time being and the future. (Dachyar et al., 2018). The only sustainable advantage is

continuous innovation at a faster pace than rival organizations. This requires a systematic approach to innovation and engaging staff on all levels to effectively take part in the innovation efforts (Toivonen, 2015). Moreover, (Nkemkiafu et al., 2019) said that, for gaining sustainable competitive advantage, a firm has to optimally utilize its internal resources and capabilities to exploit external opportunities at the same time, gauging the external threats. More emphasis has to be placed on the organization's capability to change, innovate, and be flexible and to learn how to adapt to a rapidly changing environment.

Sustainability has also emerged as a significant driver of continuous innovation. Firms are increasingly integrating sustainability into their innovation processes to meet regulatory requirements and consumer demand for environmentally friendly products (Adams et al., 2016).

2.1.2. Opportunities-based mindset

An opportunities-based mindset, which emphasizes the proactive identification and exploitation of opportunities, has gained significant attention in entrepreneurial and strategic management literature.

One of the foundational works in this area is by (Ardichvili et al., 2015), who highlighted that opportunity recognition involves the ability to perceive market gaps and unmet needs, often driven by an entrepreneurial alertness that allows individuals to notice these opportunities before others. This proactive stance is crucial for businesses to remain competitive and responsive to changing market conditions.

A dynamic opportunities-based mindset is now considered vital for maintaining a competitive edge in rapidly evolving markets (Kraus et al., 2019).

In strategic entrepreneurship, the integration of an opportunities-based mindset has been linked to superior performance outcomes. Firms that align their strategic initiatives with emerging opportunities tend to exhibit higher levels of innovation and adaptability (Covin and Wales, 2019). This alignment is achieved through a combination of proactive opportunity recognition and strategic resource reconfiguration, ensuring that firms can capitalize on new market trends while maintaining operational efficiency.

Moreover, the concept of entrepreneurial ecosystems has gained traction, emphasizing the collaborative nature of opportunity exploitation. Studies have shown that firms embedded in robust entrepreneurial ecosystems benefit from shared knowledge, resources, and networks, enhancing their ability to identify and seize opportunities (Acs et al., 2017). These ecosystems provide a fertile ground for strategic entrepreneurship, fostering innovation and competitive advantage.

Recent research also explores the role of an opportunities-based mindset in fostering corporate entrepreneurship. (Zahra et al., 2014) highlight that firms encouraging an entrepreneurial culture can better navigate uncertainties and drive strategic renewal. This culture promotes continuous opportunity scanning and encourages employees to act entrepreneurially, thereby embedding an opportunities-based mindset across the organization.

Additionally, the interplay between sustainability and an opportunities-based mindset has been a focal point in recent studies. Firms integrating sustainability into their strategic entrepreneurial activities not only contribute to societal goals but also unlock new business opportunities. This sustainable approach to strategic entrepreneurship has been linked to long-term value creation and competitive advantage (Cohen and Winn, 2007).

2.1.3. Proactive behavior

Proactivity is very important in today's decentralized workplace, where there is greater competition and enhanced pressure for innovation (Parker and Collins, 2010). Scholars have defined proactive behavior as "self-initiated and future-oriented action that aims to change and improve the situation or oneself" (Wu, et al., 2018).

As mentioned by (Sonnentag, 2003), Proactive behavior implies an active approach toward work and aims at improving given work methods and procedures as well as developing personal prerequisites for meeting future work demands. In the same context attribution theory suggests that, in order for proactive behaviors to contribute to higher overall performance evaluations, supervisors need to attribute the behavior to benevolent intentions (Grant et al., 2009).

On an organizational level, (Frese and Fay, 2020) found that proactive behavior contributes to organizational innovation and adaptability. Their research highlighted that organizations with proactive employees are better able to respond to environmental changes and maintain competitive advantage.

2.1.4. Risk-taking behavior

Risk-taking is a fundamental characteristic of entrepreneurial behavior, often associated with the pursuit of new opportunities and the potential for high rewards. (Entrekin and Chung, 2015) explored the impact of risk-taking on entrepreneurial success, emphasizing that moderate risk-taking is optimal for achieving business growth. Their study suggests that excessive risk can lead to failure, while insufficient risk may result in missed opportunities.

The role of risk-taking within strategic entrepreneurship has been a focal point of research. (Wiklund and Shepherd, 2018) argued that strategic risk-taking, when aligned with a firm's long-term goals, enhances innovation and market responsiveness. Their study highlighted the importance of balancing risk with strategic planning to achieve sustainable growth.

Recent studies have also explored the contextual factors influencing risk-taking behaviors. (Kreiser et al., 2019) examined the impact of cultural and institutional contexts on entrepreneurial risk-taking. They found that supportive regulatory environments and cultural norms that favor entrepreneurship can encourage higher levels of risk-taking among entrepreneurs.

In the same thought and thinking a study by (Hofstede et al., 2020) compared risk-taking behaviors across different cultures, revealing that cultural norms and values significantly shape individuals' risk preferences. For instance, cultures with high uncertainty avoidance tend to exhibit more risk-averse behaviors compared to those with low uncertainty avoidance.

In the realm of finance, risk-taking behavior has been scrutinized in light of economic instability and market volatility. (Thaler, 2015) explored how behavioral economics principles can explain irrational risk-taking in financial markets. Subsequent research by (Baker and Wurgler, 2021) analyzed investor behavior during economic downturns, finding that economic stress increases risk aversion, contrary to the increased risk-taking seen during economic booms

2.1.5. Value creation capabilities

Recent literature has expanded on the Resource-Based View (RBV) by integrating dynamic capabilities to explain how firms adapt and thrive in changing environments. (Teece, 2018) highlighted the importance of sensing, seizing, and transforming capabilities as essential to sustaining competitive advantage.

Innovation continues to be a critical component of value creation. According to a study by (Bogers et al., 2019), firms that engage in open innovation and collaborative ecosystems tend to outperform those that rely solely on internal R&D.

Sustainable business practices have become integral to value creation strategies. (Eccles et al., 2019) demonstrated that companies with strong environmental, social, and governance (ESG) performance tend to create more long-term value.

The role of human capital and organizational culture in value creation has been increasingly recognized. (Barney and Wright, 1998) highlighted that firms with robust human capital capabilities, such as effective talent management and a strong organizational culture, are better positioned to innovate and adapt.

2.2. Sustainable Competitive Advantage

The concept of sustainable competitive advantage has received wide attention over the past few decades within the framework of all business sectors due to its main role in keeping pace with the rapid changes that occur in the business environment, facing challenges and responding to changing customer requirements, the instability of constantly market needs, technological progress and globalization all (Sarhid and Said Alubadi, 2023).

Initially, Sustainable competitive advantages have been developed according to competitive advantages theory, and they refer to competitive advantages that an enterprise can have for a long time. Sustainable competitive advantages enable an enterprise to gain long-term benefits and avoid being outdone by potential competitors through strategic replication or imitation (Lu et al., 2016).

And it is defined as the prolonged benefit of implementing some unique value-creating strategy not simultaneously being implemented by any current or potential competitors along with the inability to duplicate the benefits of this strategy. (Hoffman, 2000).

The RBV theory states that companies can have competitive advantage through the development of resources that are peculiar and diversely distributed or dispersed (Barney and Hesterly, 2010). These resources can be physical, human and organizational in nature, and they can be used to implement value-creating strategies that will lead to sustainable competitive advantage. **(**Mosong et al., 2023). Strategic entrepreneurship provides the framework for exploiting these resources while continuously seeking new opportunities (Ireland et al., 2016).

2.3. Hypotheses of the Study

Based on the previous literatures, the hypotheses of the study can be expressed as follows:

1. There is statistically significance relationship between Continuous Innovation (CI) and Sustainable Competitive Advantage (SCA).
2. There is statistically significance relationship between Opportunity-Based Mindset (OBM) and Sustainable Competitive Advantage (SCA).
3. There is statistically significance relationship between Proactive Behavior (PB) and Sustainable Competitive Advantage (SCA).
4. There is statistically significance relationship between Risk Taking (RT) and Sustainable Competitive Advantage (SCA).
5. There is statistically significance relationship between Value Creation Capabilities (VCC) and Sustainable Competitive Advantage (SCA).

The relationship between these variables is conceptualized in Figure 1.

3. RESEARCH METHODOLOGY

A descriptive research design was adopted to collect the data and analyze the findings to establish the effect of the strategic entrepreneurship on the sustainable competitive advantage. All 1925 senior management staff in Petrochemicals and energy sector in Arab Republic of Egypt were included in the population of interest. The sample size was determined according to the following equation:

$$n = N\left[\frac{\frac{Z^2 pq}{e^2}}{N-1+\frac{Z^2 pq}{e^2}}\right]$$

By applying the previous formula, researchers found that the sample size is at least 458 senior managers. The questionnaire was designed for the target population, then distributed to a sample of them. The collected questionnaire was checked to exclude incomplete or conflicting questions. A total of 500 questionnaires were received, however, only 460 questionnaires were valid and used for this study.

To gather information from respondents this study used Structural questionnaire designed by (Naeiji and Siadat, 2019) with slight modifications to fit the context.

The structured questionnaire divided into two sections and data collected are as follows:

The first section includes the statements used to survey the individual's opinions about the independent variable, Strategic Entrepreneurship (SE) that represented by Continuous Innovation (CI), Opportunity-Based Mindset (OBM), Proactive Behavior (PB), Risk Taking (RT) and Value Creation Capabilities (VCC).

The second section includes the phrases that were used to survey the individual's opinions about the dependent variable, Sustainable Competitive Advantage (SCA).

The research instrument was structured in five (5) Likert scale measurement, ranging from 1 for strongly disagree to 5 for strongly agree.

The questionnaire contains 28 statements, divided into 6 variables. The researchers set up the study variables to reflect the research axes by calculating the weighted mean of the responses to the statements that pertain to each variable. The target of calculating the weighted mean is to convert the collected data from Ordinal Data into Ratio Data; so, one can apply the parametric techniques to analyze the data such as Pearson's coefficient of correlation, regression analysis. The following figure shows the study variables and the suggested estimated models.

4. DATA ANALYSIS AND RESULTS

Data analysis for this study was carried out with the use of multiple regression analysis in statistical analysis program STATA 9.02 to test the effect of the independent variable, strategic entrepreneurship sub - variables on the sustainable competitive advantage.

4.1. Reliability and Validity Test

To ensure the reliability of the questionnaire, a pilot study was carried out with 60 respondents and a reliability test was there after conducted using the Cronbach's alpha test. (Sekaran and Bougie, 2009).

From Table 1; the minimum value of Cronbach's alpha coefficient was 0.977, and the minimum value of Validity coefficient was 0.989. So, the researchers have statistical evidence with 95% confidence level that the reliability and the validity of the data collected are accepted. Therefore, the statistical analysis and tests hypotheses will be based on collected data set.

4.2. Test of Normality

To apply the parametric analysis (correlation and regression), the following assumptions must be met:

1. Normality: Data in each group should be normally distributed (Shapiro–Wilk Test).
2. Equal Variance: Data in each group should have equal variance (Levene's Test).

The following table shows the results of normality test for each study variable and the value of Levene's test statistic for all study variables.

From Table 2; it's clear that all P-value of Shapiro–Wilk Test are >0.050, which indicate that all study variables are normally distributed with equal variance. Also, P-value of Levene's test is >0.050 which gives statistical evidence that all study variables have equal variances.

4.3. Correlation between Study Variables

To test the hypothesis, the researchers analyzed the Pearson's

Table 1: Cronbach's alpha and validity coefficients for each variable

Variables and symbols	Cronbach's alpha	Validity
Continuous innovation (CI) X1	0.989	0.990
Opportunity-based mindset (OBM) X2	0.980	0.989
Proactive behavior (PB) X3	0.989	0.995
Risk taking (RT) X4	0.977	0.989
Value creation capabilities (VCC) X5	0.978	0.989
Strategic entrepreneurship (SE) X	0.978	0.989
Sustainable competitive advantage (SCA) Y	0.977	0.995
Minimum value	0.977	0.989

Table 2: Results of Shapiro–Wilk test and Levene's test

Tests of normality and equal variance	Shapiro-Wilk statistic	P-value
Continuous Innovation (CI) X1	0.997	0.059
Opportunity-Based Mindset (OBM) X2	0.984	0.062
Proactive Behavior (PB) X3	0.993	0.342
Risk Taking (RT) X4	0.997	0.537
Value Creation Capabilities (VCC) X5	0.987	0.532
Strategic Entrepreneurship (SE) X	0.996	0.048
Sustainable Competitive Advantage (SCA) Y	0.996	0.334
Levene's Test	0.987	0.552

Table 3: Correlation coefficient between independent and dependent variables

Independent variables/dependent variable	Sustainable competitive advantage Y
Continuous Innovation (CI) X1	
R	0.395
Sig. Value	<0.001
Opportunity-Based Mindset (OBM) X2	
R	0.501
Sig. Value	<0.001
Proactive Behavior (PB) X3	
R	0.448
Sig. Value	<0.001
Risk Taking (RT) X4	
R	0.591
Sig. Value	<0.001
Value Creation Capabilities (VCC) X5	
R	0.704
Sig. Value	<0.001

correlation coefficient between each pair of the study variables, and the researchers reached the following:

From Table 3; it's clear that the Sig. value of the dependent variable and each independent variable is smaller than the significance level 0.05; so, the researchers have statistical evidence that there is a significant and positive relationship between the dependent variable and the independent variables with confidence level 95%. Also, Pearson's correlation coefficient was estimated to discover the relationships between the main independent, and the dependent variable as shown in the following table.

From Table 4; there is a positive and significant relationship between the main independent variable Strategic entrepreneurship (SE) X and the dependent variable Sustainable Competitive Advantage (SCA) Y.

4.4. Regression Analysis

Regression analysis (Alan, 1993) is a statistical tool for the investigation of relationships between variables. Usually, the investigator seeks to ascertain the causal effect of one variable upon another. The following table shows the summary of analysis of variance for each estimated regression models (refer to Table 1A and 1B in Appendix).

From Table 5; the researchers have reached the following results.

Model 1: There is statistical evidence with a confidence coefficient of 95% that the main independent variable (SE) X significantly affects the main dependent variable (SCA) Y, as the coefficient of determination reached 47.20% and the Sig. value of this model was smaller than 0.001.

Figure 1: The relationships between the study variables and the suggested model

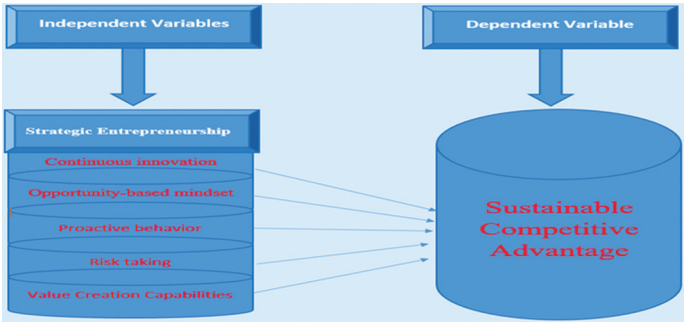

Table 4: Correlation Coefficient between main independent and dependent variable

Dependent Variable	Independent variables	R	Sig.
(SCA) Y	(SE) X	0.687	<0.001

Model 2: There is statistical evidence with a confidence coefficient of 95% that the main independent variable (CI) X1 significantly affects the main dependent variable (SCA) Y, as the coefficient of determination reached 15.60% and the Sig. value of this model was smaller than 0.001.

Model 3: There is statistical evidence with a confidence coefficient of 95% that the main independent variable (OBM) X2 significantly affects the main dependent variable (SCA) Y, as the coefficient of determination reached 25.10% and the Sig. value of this model was smaller than 0.001.

Model 4: There is statistical evidence with a confidence coefficient of 95% that the main independent variable (PB) X3 significantly affects the main dependent variable (SCA) Y, as the coefficient of determination reached 20.10% and the Sig. value of this model was smaller than 0.001.

Model 5: There is statistical evidence with a confidence coefficient of 95% that the main independent variable (RT) X4 significantly affects the main dependent variable (SCA) Y, as the coefficient of determination reached 35.00% and the Sig. value of this model was smaller than 0.001.

Model 6: There is statistical evidence with a confidence coefficient of 95% that the main independent variable (VCC) X5 significantly affects the main dependent variable (SCA) Y, as the coefficient of determination reached 49.60% and the Sig. value of this model was smaller than 0.001.

The coefficient of each regression model, standard error, t-statistic and 95% confidence interval each parameter are listed in Appendix Tables 1 and 2. From this table the estimated regression models are listed below:

$$\underset{(R^2=47.20\%)}{SCA} = \underset{(0.101)}{0268} + \underset{(<0.001)}{0.895SE} \quad (1)$$

$$\underset{(R^2=39.50\%)}{SCA} = \underset{(<0.001)}{2.004} + \underset{(<0.001)}{0.427CI} \quad (2)$$

$$\underset{(R^2=50.10\%)}{SCA} = \underset{(<0.001)}{1.473} + \underset{(<0.001)}{0.546OBM} \quad (3)$$

$$\underset{(R^2=20.10\%)}{SCA} = \underset{(<0.001)}{1.280} + \underset{(<0.001)}{0.550PB} \quad (4)$$

$$\underset{(R^2=35.00\%)}{SCA} = \underset{(<0.001)}{1.722} + \underset{(<0.001)}{0.516RT} \quad (5)$$

Table 5: Summary of analysis of variance of regression models for each independent variable

Models	Dependent Variable	Independent variables	R^2	Sig.
Model 1: $Y = f(X)$	*(SCA) Y*	*(SE) X*	0.472	<0.001
Model 2: $Y = f(X1)$	*(SCA) Y*	Continuous Innovation *(CI)* X_1	0.156	<0.001
Model 3: $Y = f(X2)$	*(SCA) Y*	Opportunity-Based Mindset *(OBM)* X_2	0.251	<0.001
Model 4: $Y = f(X3)$	*(SCA) Y*	Proactive Behavior *(PB)* X_3	0.201	<0.001
Model 5: $Y = f(X4)$	*(SCA) Y*	Risk Taking *(RT)* X_4	0.350	<0.001
Model 6: $Y = f(X5)$	*(SCA) Y*	Value Creation Capabilities *(VCC)* X_5	0.496	<0.001

$$\underset{(R^2=49.60\%)}{SCA} = \underset{(<0.001)}{1.403} + \underset{(<0.001)}{0.643}VCC \quad (6)$$

5. DISCUSSION

The objective of the present research was studying the role of strategic entrepreneurship in achieving sustainable competitive advantage in petrochemicals and oil businesses.

The results have shown a better understanding towards the relationship between strategic entrepreneurship and sustainable competitive advantage.

The results reveal that there is a statistically significant correlation between strategic entrepreneurship, and sustainable competitive advantage, as the correlation coefficient recorded a significant positive correlation between strategic entrepreneurship and sustainable competitive advantage, as it amounted to (0.687**), and as shown in Table 1, which is Significant correlation at a significant level (0.001), and accordingly, this result, confirms the existence of a positive significant correlation between strategic entrepreneurship and sustainable competitive advantage.

The results reveal that the regression model is significant (F 409.678, P < 0.001). All the five variables have significant effects on sustainable competitive advantage. The variables in unison explain approximately 47.2% of the total variation in sustainable competitive advantage and the remaining 52.8% is due to other factors, potentially economic conditions, companies' profiles.

The results reveal that all the five study's hypotheses are supported, that is, there is a significant relationship between strategic entrepreneurship and sustainable competitive advantages. Value creation capabilities has the most significant effect on sustainable competitive advantages (ß = 0.643, P < 0.001), followed by proactive behavior (ß = 0.550, P < 0.001), opportunity-based mind set (ß = 0.546, P < 0.001), risk taking behavior (ß = 0.516, P < 0.001), and continuous innovation (ß 0.427, P < 0.001).

The established significant influence of value creation capabilities on sustainable competitive advantages in Egypt oil and petrochemical companies is a positive one according to this study's findings. This goes in line with the findings of (Teece, 2018) who highlighted the importance of sensing, seizing, and transforming capabilities as essential to sustaining competitive advantage, (Eccles et al., 2019) who demonstrated that companies with strong environmental, social, and governance (ESG) performance tend to create more long-term value.

The study's conclusion in relation to Proactive Behavior is aligned with previous research expressing a significant relationship between Proactive Behavior and sustainable competitive advantages (Sonnentag, 2003), (Grant et al., 2009). and (Frese and Fay, 2020) who found that proactive behavior contributes to organizational innovation and adaptability and maintain competitive advantage.

This study also makes clear the importance of favorable opportunity-based mind set in encouraging the sustainable competitive advantages in Egypt oil and petrochemical companies. This coincides with the results of (Ardichvili et al., 2015), who stress that proactive stance is crucial for businesses to remain competitive and responsive to changing market conditions. This finding is supported by (Kraus et al., 2019) who emphasizing a dynamic opportunities-based mindset in maintaining a competitive edge in rapidly evolving markets. Regarding risk taking behavior, the study reveals significant relationships with sustainable competitive advantages. This goes in line with (Wiklund and Shepherd, 2018) whose findings highlighted the importance of balancing risk with strategic planning to achieve sustainable growth.

The study reveals a significant positive relationship between continuous innovation and sustainable competitive advantages This goes in line with the findings of (Dachyar et al., 2018), who highlighted that the only sustainable advantage is continuous innovation at a faster pace than rival organizations and this matching (Toivonen, 2015) view of a systematic approach to innovation, and consistent with the findings of (Nkemkiafu et al., 2019) emphasizing the importance of organization's capability to change, innovate, to learn how to adapt to a rapidly changing environment.

6. CONCLUSION

The study concludes that the impact of strategic entrepreneurship on sustainable competitive advantage in Egyptian's oil and petrochemical sector was found to be significant, the result showed that there is a statistically significant relationship between all five variables of strategic entrepreneurship and sustainable competitive advantage, as all five variables namely: Value creation capabilities, proactive behavior, opportunity based mind set, risk taking behavior and continuous innovation have significant effects on sustainable competitive advantage

Based on the findings of this study, it can be said that strategic entrepreneurship remains the key driver of sustainable competitive advantages in Egypt oil and petrochemical companies. The researchers found that value creation capabilities have a superior effect on competitive advantage. In contrast, continuous innovation has a less effect based on said findings; the study recommends that a more effective policy for enhancing strategic entrepreneurship generally and continuous innovation specifically should be formulated in Egyptian's petrochemicals and energy sector.

While this study contributes to the understanding of the strategic entrepreneurship elements that affects sustainable competitive advantages in Egypt oil and petrochemical companies through analysis the relationships between them, the results obtained must be taken with caution as a consequence of certain limitations. Such as: The cross-sectional nature of the study requires that its conclusions be limited to related parties.

The current study expands the theory of strategic entrepreneurship and its impact on sustainable competitive advantage, and the

results of this study may have practical implications for Egyptian oil and petrochemical companies seeking to obtain sustainable competitive advantage. However, based on the limitations of the study examined above, it provides some suggestions for future research. These suggestions are as follows: Although it could be expensive and time-consuming, a longitudinal study is appropriate for a clearer understanding of the dynamic, nature of the relationship between strategic entrepreneurship and sustainable competitive advantage. Conducting comparative studies in different countries and different sectors or studies which individually examine the strategic entrepreneurship's factors to understand their individual levels of impact on sustainable competitive advantages will also prove beneficial.

REFERENCES

Acs, Z.J., Stam, E., Audretsch, D.B., O'Connor, A. (2017), The lineages of the entrepreneurial ecosystem approach. Small Business Economics, 49(1), 1-10.

Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., Overy, P. (2016), Sustainability-oriented innovation: A systematic review. International Journal of Management Reviews, 18(2), 180-205.

Alan, O.S. (1993), An Introduction to Regression Analysis. Coase-Sandor Institute for Law and Economics Working Paper No. 20.

Ardichvili, A., Cardozo, R., Ray, S. (2015), A theory of entrepreneurial opportunity identification and development. Journal of Business Venturing, 18(1), 105-123.

Baker, M., Wurgler, J. (2021), Investor behavior in the financial markets: The role of economic conditions. Journal of Financial Economics, 140(2), 123-145.

Barney, J.B., Hesterly, W.S. (2010), Strategic Management and Competitive Advantage: Concepts. Upper Saddle River, NJ: Prentice Hall.

Barney, J.B., Hesterly, W.S. (2021), Strategic Management and Competitive Advantage: Concepts and Cases. United Kingdom: Pearson.

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

Birkinshaw, J. (2018), Corporate venturing: The structure of new ventures within large firms. Strategic Management Journal, 34(2), 213-230.

Bogers, M., Chesbrough, H., Heaton, S., Teece, D.J. (2019), Strategic management of open innovation: A dynamic capabilities perspective. California Management Review, 62(1), 77-94.

Bruton, G.D., Ahlstrom, D., Si, S. (2015), Entrepreneurship, poverty, and Asia: Moving beyond subsistence entrepreneurship. Asia Pacific Journal of Management, 32(1), 1-22.

Clark, D.R., Covin, J.G. (2021), International entrepreneurial orientation disposition: Insights into venture internationalization. In: Entrepreneurial Orientation: Epistemological, Theoretical and Empirical Perspectives. Vol. 22. United Kingdom: Emerald Publishing Limited. p87-120.

Cohen, B., Winn, M.I. (2007), Market imperfections, opportunity and sustainable entrepreneurship. Journal of Business Venturing, 22(1), 29-49.

Covin, J.G., Miller, D. (2014), International entrepreneurial orientation: Conceptual considerations, research themes, measurement issues, and future research directions. Entrepreneurship Theory and Practice, 38(1), 11-44.

Covin, J.G., Wales, W.J. (2019), Crafting high-impact entrepreneurial orientation research: Some suggested guidelines. Entrepreneurship Theory and Practice, 43(1), 3-18.

Dachyar, M., Lianto, B., Soemardi, T.P. (2018), Continuous innovation: A literature review and future perspective. International Journal on Advanced Science Engineering and Information Technology, 8, 771-779.

Eccles, R.G., Ioannou, I., Serafeim, G. (2019), The impact of corporate sustainability on organizational processes and performance. Management Science, 60(11), 2835-2857.

Entrekin, L., Chung, Y. (2015), The impact of risk-taking on entrepreneurial success. Journal of Business Venturing, 30(4), 564-577.

Frese, M., Fay, D. (2020), Proactivity in organizations: Current research and future directions. Journal of Organizational Behavior, 41(2), 179-188.

Grant, A.M., Parker, S., Collins, C. (2009), Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. Personnel Psychology, 62(1), 31-55.

Hitt, M.A., Ireland, R.D., Hoskisson, R.E. (2022), Strategic Management: Competitiveness and Globalization. United States: Cengage Learning.

Hitt, M.A., Ireland, R.D., Sirmon, D.G., Trahms, C.A. (2011), Strategic entrepreneurship: Creating value for individuals, organizations, and society. Academy of Management Perspectives, 25(2), 57-75.

Hitt, M.A., Ireland, R.D., Sirmon, D.G., Trahms, C.A. (2012), Strategic entrepreneurship: Creating value for individuals, organizations, and society. Academy of Management Perspectives, 27(2), 57-75.

Hoffman, N.P. (2000), An examination of the "sustainable competitive advantage" concept: Past, present, and future. Academy of Marketing Science Review, 2000(4), 1.

Hofstede, G., Hofstede, G.J., Minkov, M. (2020), Cultures and Organizations: Software of the Mind. United States: McGraw-Hill Professional.

Ireland, R.D., Hitt, M.A., Sirmon, D.G. (2003), A model of strategic entrepreneurship: The construct and its dimensions. Journal of Management, 29(6), 963-989.

Ireland, R.D., Hitt, M.A., Sirmon, D.G. (2016), A model of strategic entrepreneurship: The construct and its dimensions. Journal of Management, 32(6), 963-989.

Kraus, S., Clauss, T., Breier, M., Gast, J., Zardini, A., Tiberius, V. (2019), The economics of COVID-19: Initial empirical evidence on how family firms in five European countries cope with the corona crisis. International Journal of Entrepreneurial Behavior and Research, 26(5), 1067-1092.

Kreiser, P.M., Marino, L.D., Weaver, K.M. (2019), Cultural and institutional influences on entrepreneurial risk-taking. Journal of International Business Studies, 50(5), 763-780.

Kuratko, D.F., Audretsch, D.B. (2013), Clarifying the domains of corporate entrepreneurship. International Journal of Entrepreneurial Behavior and Research, 19(5), 433-452.

Kuratko, D.F., Hornsby, J.S., Covin, J.G. (2020), The Future of Entrepreneurship: Leading Entrepreneurs and Investors on the Global Market and the Next Wave of Innovation. Novato, CA: Aspatore Books.

Lavie, D., Haunschild, P.R., Khanna, P. (2012), Organizational differences, relational mechanisms, and alliance performance. Strategic Management Journal, 33(2), 1453-1479.

Lu, I.Y., Kuo, T., Lin, T.S., Tzeng, G.H., Huang, S.L. (2016), Multicriteria decision analysis to develop effective sustainable development strategies for enhancing competitive advantages: Case of the TFT-LCD industry in Taiwan. Sustainability, 8, 646.

Morris, M.H., Kuratko, D.F., Covin, J.G. (2020), Corporate Entrepreneurship and Innovation. United States: Cengage Learning.

Morris, M.H., Kuratko, D.F., Schindehutte, M. (2021), Toward integration: Understanding entrepreneurship through frameworks. Entrepreneurship Theory and Practice, 45(1), 29-50.

Mosong, S.M., Komen, J., Cheboi, J. (2023), Effect of talent management

practices and employee engagement on perceived sustainable competitive advantage of commercial banks in Nairobi County, Kenya. Nairobi Journal of Humanities and Social Sciences, 7(2), 1104.

Naeiji, M.J., Siadat, S.H. (2019), Developing a measurement for strategic entrepreneurship by linking its dimensions to competitiveness in knowledge-based firms. International Journal of Business Innovation and Research, 18(1), 1-18.

Nkemkiafu, A.G., Felix, N., Asah, N.P. (2019), Innovation practices for sustainable competitive advantage. European Journal of Business and Innovation Research, 7(3), 48-67.

Parker, S.K., Collins, C.G. (2010), Taking stock: Integrating and differentiating multiple proactive behaviors. Journal of Management, 36(3), 633-662.

Sarhid, A.M., Said Alubadi, S.A. (2023), Impact of strategic entrepreneurship on sustainable competitive advantage: A field research in the North oil company/Kirkuk. Kurdish Studies, 11(2), 658-670.

Sekaran, U., Bougie, J.R.G. (2009), Research Methods for Business: A Skill Building Approach. 5th ed. United States: Wiley Publishers.

Sonnentag, S. (2003), Recovery, work engagement, and proactive behavior: A new look at the interface between nonwork and work. Journal of Applied Psychology, 88(3), 518-528.

Teece, D.J. (2014), A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. Journal of International Business Studies, 45(1), 8-37.

Teece, D.J. (2018), Dynamic capabilities as (workable) management systems theory. Journal of Management and Organization, 24(3), 359-368.

Thaler, R.H. (2015), Misbehaving: The Making of Behavioral Economics. Vol. 164. New York: W. W. Norton and Company. p185-188.

Toivonen, T. (2015), Continuous innovation - Combining Toyota Kata and TRIZ for sustained innovation. Procedia Engineering, 131, 963-974.

Wiklund, J., Shepherd, D.A. (2018), Balancing risk and strategic planning: Enhancing innovation and market responsiveness. Strategic Management Journal, 39(5), 1348-1372.

Wu, C.H., Parker, S.K., Wu, L.Z., Lee, C. (2018), When and why people engage in different forms of proactive behavior: Interactive effects of self-construal and work characteristics. Academy of Management Journal, 61(1), 293-323.

Zahra, S.A., Sapienza, H.J., Davidsson, P. (2015), Entrepreneurship and dynamic capabilities: A review, model, and research agenda. Journal of Management Studies, 43(4), 917-955.

Zahra, S.A., Wright, M., Abdel Gawad, S.G. (2014), Contextualization and the advancement of entrepreneurship research. International Small Business Journal, 32(5), 479-500.

APPENDIX

Appendix Table 1A: Coefficients of regression models, SE, t-statistic, 95% confidence intervals

Model 1: $Y = f(X)$						
Models	**Coefficient**	**Standard Error**	**t-Statistic**	**Sig.**	**LL**	**UL**
Intercept	0.268	0.163	1.645	0.101	−0.052	0.588
SE (X)	0.895	0.044	20.241	<0.001	0.808	0.982
R-Squared	47.20%					
Model 2: $Y = f(X_1)$						
Intercept	2.004	0.169	11.885	<0.001	1.673	2.335
CI (X_1)	0.427	0.046	9.192	<0.001	0.336	0.518
R-Squared	39.50%					
Model 3: $Y = f(X_2)$						
Intercept	1.473	0.168	8.742	<0.001	1.142	1.804
OBM (X_2)	0.546	0.044	12.386	<0.001	0.459	0.633
R-Squared	50.10%					
Model 4: $Y = f(X_3)$						
Intercept	1.280	0.212	6.049	<0.001	0.864	1.696
PB (X_3)	0.550	0.051	10.728	<0.001	0.449	0.651
R-squared	20.10%					
Model 5: $Y = f(X_4)$						
Intercept	1.722	0.118	14.564	<0.001	1.490	1.955
RT (X_4)	0.516	0.033	15.693	<0.001	0.452	0.581
R-Squared	35.00%					
Model 6: $Y = f(X_5)$						
Intercept	1.403	0.103	13.628	<0.001	1.201	1.605
VCC (X_5)	0.643	0.030	21.236	<0.001	0.584	0.703
R-Squared	49.60%					

Appendix Table 1B: Analysis of variance of regression models for each independent variable

ANOVA model 1: $Y = f(X)$ common model for the independent variables						
Source	**DF**	**R² (%)**	**Sum of squares**	**Mean square**	**F-ratio**	**Sig.**
Model	1	47.20	119.039	119.039	409.678	<0.001
SE (X)	1	47.20	119.039	119.039		<0.001
Error	458	52.80	133.080	0.291		
Total	459	100.00	252.119			
ANOVA model 2: $Y = f(X1)$ common model for the independent variables						
Source	**DF**	**R² (%)**	**Sum of squares**	**Mean square**	**F-ratio**	**Sig.**
Model	1	39.50	39.267	39.267	84.491	<0.001
CI (X_1)	1	39.50	39.267	39.267		<0.001
Error	458	60.50	212.852	0.465		
Total	459	100.00	252.119			
ANOVA model 3: $Y = f(X2)$ common model for the independent variables						
Source	**DF**	**R² (%)**	**Sum of squares**	**Mean square**	**F-ratio**	**Sig.**
Model	1	25.10	63.258	63.258	153.406	<0.001
OBM (X_2)	1	25.10	63.258	63.258		<0.001
Error	458	74.90	188.861	0.412		
Total	459	100.00	252.119			
ANOVA model 4: $Y = f(X3)$ common model for the independent variables						
Source	**DF**	**R² (%)**	**Sum of squares**	**Mean square**	**F-ratio**	**Sig.**
Model	1	20.10	50.634	50.634	115.098	<0.001
PB (X_3)	1	20.10	50.634	50.634		<0.001
Error	458	79.90	201.485	0.440		
Total	459	100.00	252.119			
ANOVA model 5: $Y = f(X4)$ common model for the independent variables						
Source	**DF**	**R² (%)**	**Sum of squares**	**Mean square**	**F-ratio**	**Sig.**
Model	1	35.00	88.162	88.162	246.271	<0.001
RT (X_4)	1	35.00	88.162	88.162		<0.001
Error	458	65.00	163.958	0.358		
Total	459	100.00	252.119			

(Contd....)

Appendix Table 1B: ***(Continued)***

ANOVA model 6: $Y = f(X5)$ common model for the independent variables						
Source	**DF**	**R^2 (%)**	**Sum of squares**	**Mean square**	**F-ratio**	**Sig.**
Model	1	49.60	125.086	125.086	450.979	<0.001
VCC (X_5)	1	49.60	125.086	125.086		<0.001
Error	458	50.40	127.033	0.277		
Total	459	100.00	252.119			