The mediating role of competitive advantage in the relationship between total quality management, entrepreneurial orientation, organizational innovation, and organizational performance

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A B S T R A C T

The study aimed to know the positive impact of TQM, EO, and OI on OP, in addition to the indirect impact of TQM, EO, and OI on OP when using CA as an intermediary variable. The study sample consisted of all (307) employees in senior and middle departments working in total quality. Random sampling was the sampling technique strategy used in this study. For the measurements in this investigation, a closed questionnaire from previous research was used. The primary data analysis technique in this study was to evaluate the measurement model and structural model using SmartPLS (4.01). The discriminant and convergent validity of the measurement model was assessed. The results of the study show that in addition to having a direct and positive effect on OP, TQM, EO and OI also have an indirect and positive effect on OP when CA is used as a mediating variable. According to the study, OI, TQM, and EO should receive equal attention from major local industrial enterprises operating in the Kingdom of Saudi Arabia. As one of the most important management strategies for advancing management thought, large local Saudi industrial companies should also implement and ensure the success of a management program. Comprehensive quality and pioneering orientation. These strategies have been proven to be successful in helping organizations solve problems related to productivity or service quality.

1. Introduction

In the era of economic liberalization, companies face enormous difficulties in adapting to the dynamic and highly competitive business environment (Soliman, 2013; Enquist et al., 2015). These difficulties highlight the importance of putting various comprehensive quality assurance procedures into practice to enhance organizational performance (Arumugam, et al., 2009). Organizations around the world have come to value organizational performance more in recent years to maintain a competitive advantage. To satisfy customers and enhance the success of industrial companies, quality management has now become a mandatory policy rather than an optional one. For this reason, organizations began to search for best practices and strategies to reach organizational excellence, the starting point, success, and the finish line. Total quality management (TQM) is a strategy and technique that has received attention from scholars as a conditional philosophy for achieving the goal of improving the quality of goods and services that satisfy customers (Douglas & Judge, 2001). The significant contribution that TQM makes to enhancing organizational performance is the subject of numerous studies (Abdullah & Tari, 2012; Sunil, C. ,2013; Thai & Ji, 2018). In addition to helping organizations achieve their goals and enhance performance, it also addresses the role of TQM to achieve efficiency and optimal organizational performance. There are several considerations regarding the link and potential synergy between TQM and organizational excellence. The goal of any company, whether in the public or private sector, is to achieve the best possible performance and organizational excellence. Focus on results and customer satisfaction, clearly defined leadership and goals, management of processes and facts, employee development and

engagement, learning, innovation, creativity, and social responsibility are some of the core values of organizational excellence (Goetsch & Davis, 2014; Houshi & Taleghani, 2016). According to Berkman et al. (2011), Hoshi and Taher (2016), organizational excellence is the development and application of strategies to achieve operational performance that is compatible with the organization and its environment, as well as maintaining the process of implementing and reviewing these plans in accordance with comprehensive quality controls, continuous improvement, and organizational learning methods. Entrepreneurial orientation (EO) is an essential component of strategy and entrepreneurship (Smith & Jambulingam, 2018). They emphasized that it serves as a reflection of the managerial vision and provides guidance for the organizational endeavors necessary to generate innovations that bring value to customers and companies that meet their needs. In short, EO entrepreneurial orientation is the orientation of organizational decision making to encourage intrapreneurship in a firm (Lumpkin & Dess, 1996). The unique approach and attitude towards strategic direction, decision-making and business execution is known as entrepreneurial orientation (EO). Companies that exhibit entrepreneurial orientations (EO) are willing to innovate their products and face the challenges of creating and launching new and unexpected goods and services in untapped markets. The Employers' Office also points out that these companies actively seek out new prospects before competitors (Lan & Wu, 2010). Empirical research was conducted to understand the comprehensive impact of total quality management, organizational excellence, and entrepreneurial orientation on organizational performance in large local Saudi industrial companies. These factors are crucial to the success of any organization.

2. Literature study and hypothesis development

2.1 TQM and organizational performance

Quality management (QM) methods and procedures might change periodically depending on the business, but the fundamental idea is the same for both the manufacturing and service sectors (Khan et al., 2016; Humaid et al., 2017). It is commonly acknowledged that TQM is a necessary management concept. According to Talib et al. (2011), TQM aids businesses across a range of industries in adapting to the rapid changes in the business environment (Belén Escrig-Tena, 2004). recognized the global cutting edge of TQM in achieving superior products and services, leading to robust organizational performance. Although TQM was first applied in the manufacturing industry, it is now being widely employed in the public and service sectors (Fryer et al., 2007). The kind of quality service that businesses use to grow and adjust to the needs of their customers is called a "quality journey" (McGregor, 2004). Thus, an efficient quality management program is not straightforward because all parties must work in the same direction (Uluskan et al., 2018). According to Talib et al. (2011), TQM is widely acknowledged as the management approach that enables businesses across several industries to respond to the quickly evolving business environment. TQM is a critical tactic for raising customer satisfaction, cutting costs and time, optimizing waste, boosting productivity, and enhancing the quality of goods and services (Meftah Abusa,, 2013; Oprescu, 2012; Valmohammadi, 2011; Pakdil, 2010; Besterfield et al., 2003; Goetsch & Davis, 2006). According to Khalaf and Salem (2018), the TQM literature focuses on two significant challenges regarding the TQM–performance link. The first concern is the ways in which manufacturing and service organizations using TQM techniques to boost productivity differ from one another (Rönnbäck & Witell, 2008). Studies on TQM in service organizations associated with the production setting are scarce since, notably, the application of TQM methods in these organizations is not always as successful as it is in manufacturing organizations (Psomas et al., 2017). According to Tuomi et al. (2013), effective execution of Total Quality Management (TQM) necessitates the support of upper management, employee empowerment and engagement, a customer-focused approach and ongoing enhancement, TQM training for the entire organization, and enhanced communication. That is, the manufacturing sector is the main subject of most TQM-related empirical studies (Demirbag et al., 2006; Meftah Abusa & Gibson, 2013), or in some cases, a combination of both sectors (Gustafsson et al., 2003). The link between service organizations has been the subject of numerous research (Al-Dhaafri et al., 2016a; Brah et al., 2000; Hasan & Kerr, 2003; Singh & Sushil, 2013). A conceptual framework for empirically examining the influence of supply chain quality management (SCQM) and related indicators on organizational performance was put forth by Hussain et al. (2020). In addition to the statistical research using SEM that showed that customer happiness has the most direct impact on organizational performance, they discovered that SCQM practices are significantly connected with innovation and operational performance. Ajmal et al. (2016) explored the stages, tenets, and development of TQM in public health care companies using a qualitative research methodology. They emphasized that adopting TQM requires training, mentoring, teamwork, involvement, and learning as essential components for creating a culture of continuous improvement. Furthermore, they suggested focusing more on the critical role that all stakeholders have in the implementation of TQM. Robert Kaplan and David Norton created the balanced scored card (BSC) in 1990 as a performance management tool to assess how well minor operational activities and broad visions and strategies align (Niven, 2005; Chen, et al., 2009). According to Kaplan and David (1996), BSC is primarily used to measure the performance of organizations using four indicators: financial, customer, internal process, learning, and growth. BSC has been utilized by numerous authors, including Al-Qubaisi and Ajmal (2018), to assess organizational effectiveness. The BSC technique is also used in this study to assess how independent variables affect organizational performance. The second issue, however, concerns a number of writers who have documented the noteworthy and beneficial outcomes attained by applying TQM dimensions; alternative research has documented the unfavorable or negligible impacts of TQM (Barouch & Kleinhans, 2015). Considering these conflicting results, several academics have suggested adding other factors to TQM adoption in order to achieve positive outcomes (Calvo-Mora, et al., 2014; Longbottom and Hilton, 2011). As a result, the following theory is proposed

H₁. *TQM has a positive and significant impact on OP.*

2.2 Entrepreneurial orientation and organizational performance

Miller (2011) created the concept of entrepreneurial orientation, and Cohen (1989) improved it. The phrase describes the risk-taking, inventiveness, and proactiveness of managers. It also clarifies how much weight a company gives to finding and seizing fresh possibilities arising from the dynamics of its task and microenvironment (Shane and Venkataraman, 2000). Previous studies have suggested that entrepreneurial firms are more likely to take risks than non-entrepreneurial enterprises and that they actively seek out new business prospects (Khandwalla, 1977). Performance of the organization Numerous earlier research projects examined the connection between and organizational success. The effects of EO's two dimensions risk-taking and inventive reactiveness on the financial and non-financial performance of businesses were examined by Chao and Lee (2018). They discovered that out of all the variables, only the inventive proactiveness variable was statistically significant. Furthermore, Smith and Jambulingam (2018) conducted an empirical investigation of the aspects of this EO and how they affect performance. They discovered that the three characteristics of innovation, risk-taking, and proactiveness outperform autonomy and competitive aggressiveness in terms of importance and performance, and that the EO significantly affects customer orientation and business effectiveness. According to Miller (1983), risk-taking and proactiveness must positively covariate for EO to exhibit innovativeness. However, Lumpkin and Dess (1996). extended EO to five dimensions, proposing that innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy are its constituents (refer to Fig. 1). Miles and Arnold (1991) discovered that while business orientation and EO are similar, they are not the same. They contended that even while market focus is emphasized by competitor and consumer intelligence, EO is primarily motivated by unexplored market prospects. According to Khandwalla (1998), business enterprises actively look for new business possibilities and typically take on greater risks than non-entrepreneurial firms. Numerous scholars (Abebe, 2014; Bititci, 2015; Bititci & Taheri, 2019; Cho & Lee, 2018; Homburg et al., 2012; Sainaghi et al., 2017; Smith & Bititci, 2017; Smith, & Jambulingam, 2018) have noted the favorable and noteworthy impact of EO on organizational performance. Accordingly, the following hypothesis is proposed:

H₂. *EO has a positive and significant effect on OP.*

2.3 Organizational innovation and organizational performance

The forward-thinking businesses have become adept at creating effective and efficient processes to foresee opportunities, update their operations, and get over organizational shortcomings (Vafaei et al., 2019). Product or process innovation might be considered an aspect of organizational innovation capability (Pelau & Chinie, 2018). Within your company, even the capacity for innovation might manifest as a strong network (Pop et al., 2018). The capacity for innovation can take several forms, one of which is the capacity for fintech innovation (Omodero, 2021). The reviewed scientific literature suggests that there are two main approaches to innovation capability: a) one that introduces innovation as a metasystemic element in any part that can be entered, and has stated the conditions and needs of innovation, regardless of its location; b) one that assumes innovation capability in a systemic view and as one of the parts of the organization's system and its patterns are based on data and Outputs are provided with an internal process that leads to innovation. This perspective characterizes innovation's capacity in a way that allows it to be established in any organizational subsystem by providing the right conditions (Hassan & Jaaron, 2021). Because focusing on innovation capability as a component of a system (organization) enables its survival in the important processes of the system (organization) to prevent the deployment of innovation in the sector, innovation inside a system with innovation capability can be more readily accepted. Reasons related to organizations (Yusr, 2016). The organization's capacity for innovation is dependent upon its other competencies. Operational, structural, and human capacities are the three most important of these capabilities. Almost all organizational innovation goals in production and competitiveness are included in organizational performance, which is related to cost, speed, flexibility, reliability or quality). Furthermore, organizational performance can be described as a broad term that includes all ideas associated with the achievement and operations of the entire company. In terms of the organization's vision, missions, goals, strategic thinking, leadership, organizational design, technology, and organizational procedures, high-performance organizations have special characteristics. A high-performance organization's mission statement explains the key factors that influence success. Goals are defined and quantifiable in high-performance companies (Ebrahimi & Sadeghi, 2003). According to Aghayani and Hajmohammadi (2019), organizational performance is the sum of an organization's functions, tasks, and activities as well as the results of those actions. According to another definition, organizational performance is defined as meeting commitments and exceeding social and organizational goals (Jenkins ,2006). Another meaning of organizational performance is an indicator of how well an institution or organization performs in achieving its goals (Shin & Kim, 2015). Based on the above, the following hypothesis was formulated:

H₃. *OI has a positive and important impact on OP.*

2.4 Competitive advantage and organizational performance

Since competitive advantage is a strategy intended to maximize firm value, it is the secret to success in organizational and corporate performance (Sigalas, C. ,2015). According to the definition of CA (Hill Charles et al., 2014), "when a firm's

profitability exceeds the average profitability of all firms in its industry, it has a competitive advantage over its competitors". The basis of CA is something special that a business possesses, and the capacity to establish and sustain CA is essential to market success (Hossain et al., 2022). To obtain CA, manufacturing organizations must, however, confront and manage an unending supply of high-quality goods and services because rivalry exists in all businesses. Consequently, to make the product flawless in a competitive business climate, creativity and innovation are crucial traits. This viewpoint holds that management support is necessary to foster a supportive and educational work environment that promotes knowledge exchange and creative pursuits. OP as a source of CA (Barney,1986), and knowledge and innovation can drive contemporary businesses for a range of CA (Gil-Gomez et al.,2020). Similarly, it is thought that the confluence of CA, OP, and OI determines the organizational structure or strategy that fosters business excellence (Camisón & Villar-López, 2014; Chang et al., 2017). Therefore, to be competitive in the market, a company needs to be able to immediately set itself apart from its rivals, take measured risks, and do so with the resources and skills necessary. It must also possess exceptional skill in seizing significant market share and business possibilities. Sector of business (Anwar, 2018). Nordiante et al.'s research (Nurdiant, et al., 2017) shows that a company's CA will be able to improve organizational performance as well. Price, quality, reliability of delivery, speed to market, and product innovation are characteristics that a company can use to create value for buyers or consumers, and this is where CA originates (Li et al., 2006). Considering this, Blouinhad et al. (2019) collected information from 560 senior executives or production managers who examined SCM procedures to conduct a study on food trade in Thailand. The analysis of their study revealed that CA may be the reason behind a company's organizational performance, directing it towards high performance.

**H₄:** *CA has a positive and significant impact on OP.*

H₅: *CA mediates the relationship between TQM and PO.*

H₆: *CA mediates the relationship between EO and OP.*

H₇: *CA mediates the relationship between OI and OP.*

3. Methodology

To examine the proposed model, a survey-based methodology was used with data collected, on a cross-sectional basis, from middle-level managers in large manufacturing firms in Kingdom of Saudi Arabia in collaboration with human resource (HR) departments, using a convenience sampling technique due to the absence of a sampling frame; this technique is commonly employed in similar studies, such as Apolinario et al. (2023) and Gelaidan et al. (2023).
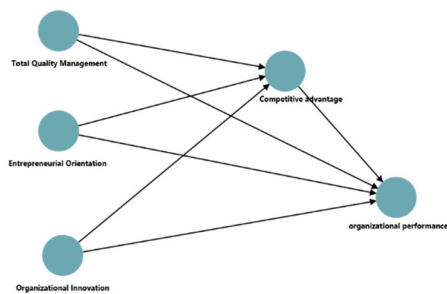
Fig. 1. Study model

Table 1
Study variables and code

Variable	Code
Total Quality Management	TQM
Organizational Innovation	OI
Entrepreneurial orientation	EO
Competitive advantage	CA
Organizational performance	OP

The population of this study encompasses several manufacturing industries, such as pharmaceuticals, food and beverage, plastics and packaging, as well as chemical and petrochemical industries. Before data collection, and to ensure the scale's reliability and validity and prevent data bias, we performed face and content validity tests. Five academics reviewed the questionnaire and offered their feedback to improve the relevance and comprehensibility of the items. Additionally, a pretest involving five individuals from the target population was conducted to make certain that all the items were understood correctly. Consequently, the questionnaire was revised to consist of two sections: the first pertaining to demographic factors and the second focusing on the constructs. To incentivize participants to fill out the questionnaire and boost the response rate, the questionnaire included a statement guaranteeing respondents' anonymity. Furthermore, regular e-mail reminders were sent out. A total of 400 participants took part in this study. Out of the distributed questionnaires, 288 were returned and 279 of them were complete and suitable for analysis, which is a reasonable sample size for performing hierarchical or multiple regression analysis (Tabachnick and Fidell, 2013). To get greater accuracy in estimating the minimum sample size, we evaluated the statistical power using G*Power, as suggested by Faul et al. (2007). After considering a statistical power of 80%, an effect size of 0.15 and a significance level of 5% (Cohen, 2013), the analysis determined that a minimum of 85 cases was needed. Consequently, the chosen sample size for this study, which was 279 cases, was deemed sufficient. Furthermore,

the sample size of 279 respondents satisfied the prescribed criteria, which is defined as being "ten times the largest number of structural paths directed at a particular latent construct in the structural model" (Hair et al., 2011, p. 144). The 23 questions that make up the items used to measure each construct in this study were taken from earlier research; 5 were taken from Abimbola et al. (2020) for TQM, 5 from Camisón, 2014 for OI, and 4 from Smith and Jambulingam (2018); 4 from Wang (2014) for CA, and 5 from Sainaghi et al. (2017) for OP.

4. Analysis Results

Based on an eigenvalue of 1 or higher, constructs were reduced, and components were considered in the Exploratory Factor Analysis (EFA) (Budur, 2020). The eigenvalue indicates the extent to which a factor explains the observed variables' shared variation. Using this method produced dimensions that explained 88% of the variation. Descriptive information was shown in Table 2 (Hair et al., 2010), including the composite reliability (rho_c) and composite reliability (rho_a) values. The dimensions showed excellent reliability with Cronbach's alpha values greater than 0.7 (Budur & Butorac, 2021). Construct validity was assessed using both discriminant and convergent validity tests. Convergent validity was evaluated using composite reliability (CR) and average variance extraction (AVE), and the findings indicated strong connections between the construct components. Both the expected AVE values and the CR exceeded 0.7 and 0.5, respectively. The discriminant and convergent validity results, which are presented in the table along with cross-loading and collinearity (VIF) statistics, corroborate the validity and reliability of the model. The constructs included sustainable development, financial performance, accounting measurement, accounting disclosure, and accounting information systems. As a result, the research divided the elements into five categories that matched different dimensions: The data were classified using factor loadings, sociocultural factors, and Cronbach's alpha, and each item was precisely positioned inside its proper dimension. The validity evaluation procedure comprised tests of discriminant validity (DV) and convergent validity (Khine, 2013). The results showed that the structures were precisely defined and that the necessary dimensions were kept apart. Convergent validity was supported by the square root of the mean variance extract's bigger value than the correlation coefficients for the other dimensions, which demonstrated the measures' quality of fit. (See Table 2).

Table 2
Composite Reliability, VIF and AVE

Variable	Items	Outer weights	VIF	EO	OI	OP	SA	TQM	Cronbach's alpha	Composite reliability (rho_a)	AVE
				\multicolumn{5}{Cross loadings}			EFA		
EO	EO1	0.284	2.089	**0.823**	0.657	0.647	0.638	0.681			
	EO2	0.291	2.041	**0.815**	0.677	0.644	0.672	0.657			
	EO3	0.319	2.632	**0.867**	0.757	0.758	0.682	0.722			
	EO4	0.299	2.487	**0.845**	0.741	0.715	0.637	0.678	0.907	0.907	0.782
OI	OI1	0.234	2.308	0.732	**0.834**	0.719	0.656	0.672			
	OI2	0.242	2.470	0.689	**0.845**	0.744	0.674	0.669			
	OI3	0.235	2.226	0.664	**0.823**	0.701	0.682	0.707			
	OI4	0.243	3.076	0.744	**0.837**	0.751	0.672	0.760			
	OI5	0.239	3.245	0.717	**0.851**	0.733	0.671	0.730	0.858	0.860	0.702
OP	OP1	0.240	2.622	0.721	0.770	**0.852**	0.706	0.747			
	OP2	0.229	3.043	0.676	0.740	**0.851**	0.674	0.704			
	OP3	0.230	2.932	0.681	0.733	**0.861**	0.699	0.695			
	OP4	0.236	4.320	0.733	0.741	**0.844**	0.717	0.718			
	OP5	0.236	4.697	0.716	0.735	**0.865**	0.742	0.703	0.894	0.894	0.702
SA	SA1	0.291	3.503	0.698	0.730	0.759	**0.890**	0.696			
	SA2	0.280	3.798	0.680	0.713	0.723	**0.896**	0.680			
	SA3	0.276	3.185	0.671	0.665	0.728	**0.889**	0.661			
	SA4	0.284	2.708	0.724	0.722	0.719	**0.861**	0.694	0.884	0.887	0.686
TQM	TQM1	0.240	1.616	0.625	0.670	0.678	0.644	**0.751**			
	TQM2	0.259	3.235	0.721	0.730	0.754	0.670	**0.865**			
	TQM3	0.247	3.941	0.682	0.721	0.715	0.645	**0.889**			
	TQM4	0.238	2.715	0.670	0.708	0.672	0.641	**0.858**			
	TQM5	0.223	1.855	0.685	0.663	0.630	0.594	**0.769**	0.908	0.908	0.730

Table 3
Discriminant Validity (HTMT)

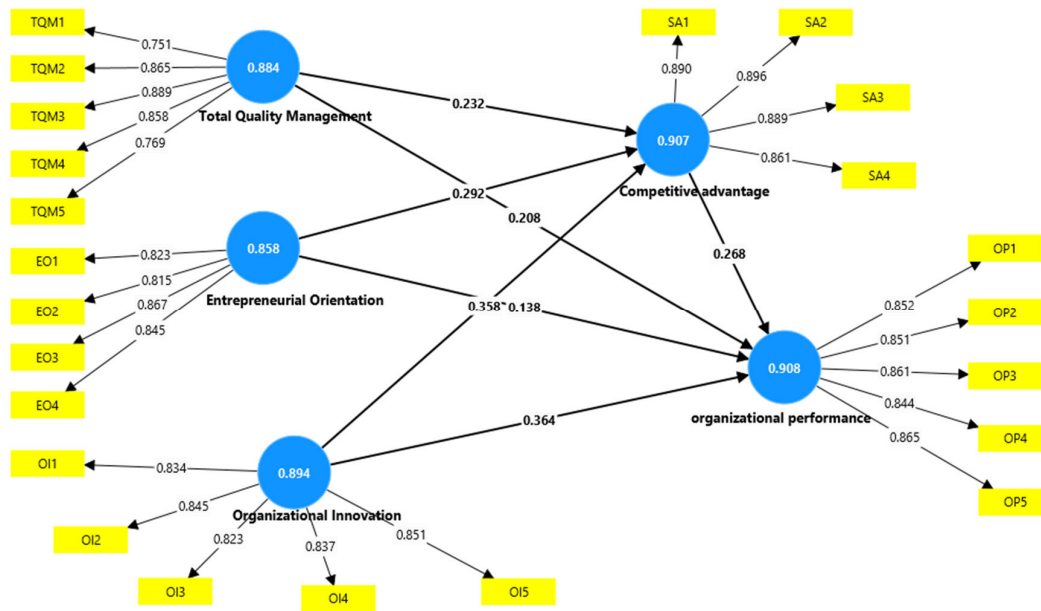| Variable	CA	EO	OI	TQM	OP
CA					
EO	0.889				
OI	0.889	0.965			
TQM	0.863	0.940	0.950		
OP	0.912	0.934	0.966	0.931	

Fig. 2. EFA Analysis Results, Composite Reliability, VIF and AVE

Convergent and discriminant validity tests are used to evaluate the construct validity of the model. Discriminant validity is proved to ascertain whether components have distinct and uncorrelated values. For each research variable, for instance, it was found (from Table 2) that the comparison's AVE value is greater than 0.5. This result is higher than the comparison row's (0.5) and comparison column's (0.782, 0.702, 0.702, 0.686, 0.730) correlation values. A similar conclusion was also drawn about the latent variables, OP, CA, consistency, relevance, and dependability. The result indicates that discriminant validity has a solid foundation.

Table 4

Fornell-Larcker criterion

Variable	CA	EO	OI	TQM	OP
CA	0.884				
EO	0.784	0.838			
OI	0.801	0.846	0.838		
TQM	0.773	0.818	0.845	0.828	
OP	0.828	0.826	0.871	0.835	0.854

Table 4 displays the findings of the Fornell-Larcker criteria for discriminant validity. Square roots of AVE on diagonals larger than construct correlations (represented by the relevant row and column values) are indicated by the bolded values. The components exhibit great discriminant validity (Hult et al., 2017; Tatham et al., 2010) because they have stronger connections with their respective indicators than other model constructs (Fornell, 1981; Chin, 1998). Moreover, the exogenous component correlation is less than 0.88, according to Awang et al. (2014). Each construct's discriminant validity is therefore satisfied.

Table 5

Measuring the size of effects F2

The size of the effects	F2	size of the effects
CA → OP	0.126	middle
EO → CA	0.069	middle
EO → OP	0.025	middle
OI → CA	0.090	large
OI → OP	0.149	large
TQM → CA	0.044	middle
TQM → PO	0.060	middle

The metric known as effect size, or F2, is employed to measure the extent to which an exogenous variable impacts the R^2 of an endogenous variable. (Cohen, 1988) offered the following F2 criteria: 0.02 (small), 0.15 (mid), and 0.35 (large).
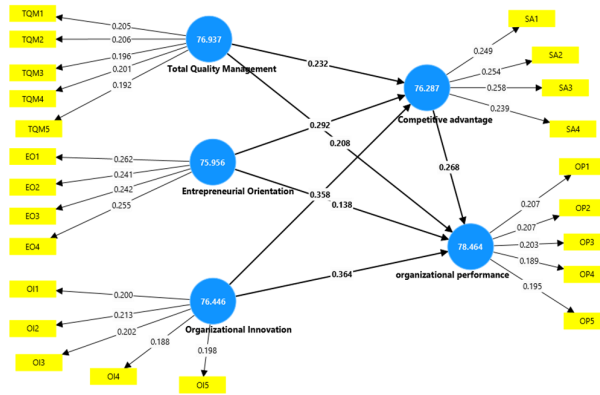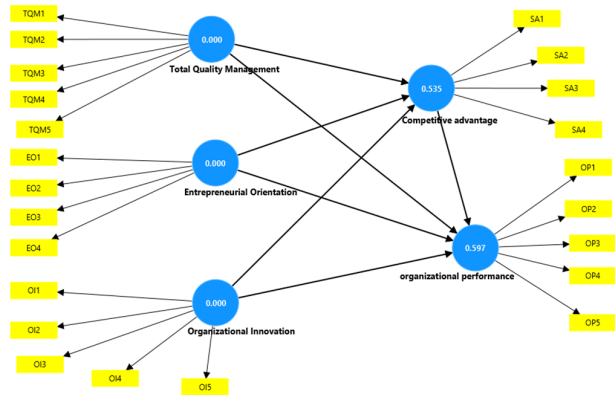
Fig. 3. Percentage

Fig. 4. Q²

Table 6

Percentage

Variable	%
TQM	76.937
IO	75.956
OI	76.446
CA	76.287
OP	78.464

Total quality management = TQM, Organizational Innovation = OI, entrepreneurial orientation = EO, competitive advantage = CA, Organizational performance = OP.

Table 7

R², Q²

Variable	R²	Q²
CA	0.695	0.535
OP	0.827	0.597

Hair et al. (2018) used the structural model to evaluate the associations shown in Fig. 3 and validate the properties of the measurement model. R^2 values of 0.695 for competitive advantage were used to evaluate the fit of the structural model to the data. The fraction of the internal volatility of the dependent variable that can be represented by the R^2 value. The results of Table 8 show that the model represents 0.827. In addition, the predictive power of the model was evaluated using Stone-Geisser (Q2); the result of the dependent variable (OP) was 0.597 and the value of the intermediate variable (CA) was 0.535. The Q2 values of the internal constructs are (0.535 0.597), according to Peng and Lai (2012), which indicates adequate prediction and is greater than zero.
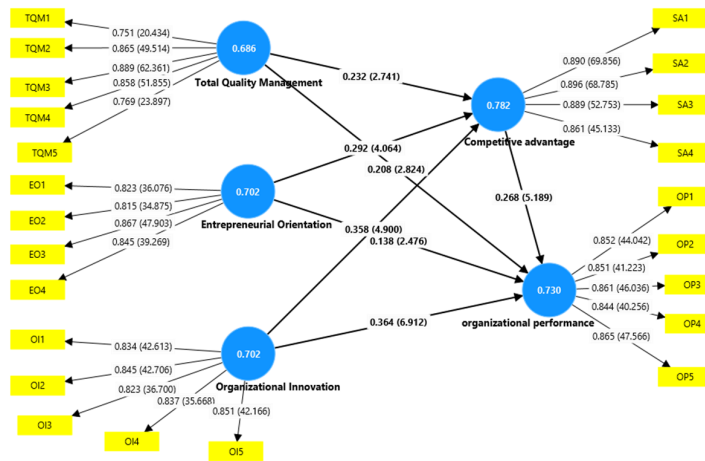
5. Hypothesis testing

Fig. 5. Hypothesis testing

Table 8

Testing indirect hypotheses

Variable	beta	Sample mean	Error S.d	Bias	2.5%	97.5%	T	P values	decision
EO → CA → OP	0.078	0.078	0.022	0.000	0.041	0.127	3.615	0.000	Supported
OI → CA → OP	0.096	0.097	0.025	0.001	0.052	0.152	3.781	0.000	Supported
TQM → CA → OP	0.062	0.065	0.030	0.003	0.010	0.124	2.061	0.039	Supported

6. Discuss the results

The first indirect hypothesis is "EO → CA → OP". The study showed that EO has a positive and indirect effect on OP through CA and that the relationship between EO and OP is positive, where (Beta value = 0.078; T = 3.615; P < 0.05), thus the first indirect hypothesis was accepted. This is an acceptable and supported hypothesis. The second indirect hypothesis is "OI → CA → OP". The study showed that OI has a positive and indirect effect on OP through CA and that the indirect relationship between OI and OP is positive, as (Beta value = 0.096; T = 3.781; P < 0.05), thus the second indirect hypothesis was accepted. This is an acceptable and supported hypothesis. The second indirect hypothesis is "TQM → CA → OP". The study showed that TQM has a positive and indirect effect on OP through CA and that the indirect relationship between TQM and OP is positive, as (Beta value = 0.062; T = 2.061; P < 0.05), thus the third indirect hypothesis was accepted. This is an acceptable and supported hypothesis. The data summary makes it evident that TQM procedures affected CA and OP in Iraqi SMEs. The study discovered that, with competitive advantage acting as a mediator, affected organizational performance. This result corroborates the conclusions of the several studies (e.g., Saleh et al., 2018; Alnuaimi & Yaakub, 2020; Flynn et al., 1995; Lakhal, 2009; Munizu, M. (2013).

Table 9
Hypothesis testing direct

Variable	beta	Sample mean (M)	Error S.d	Bias	2.5%	97.5%	T	P values	decision
CA → OP	0.292	0.290	0.072	0.004	0.162	0.365	5.189	0.000	Supported
EO → CA	0.138	0.137	0.056	-0.002	0.147	0.430	4.064	0.000	Supported
EO→ OP	0.358	0.359	0.073	-0.001	0.034	0.252	2.476	0.013	Supported
OI → CA	0.364	0.362	0.053	0.001	0.215	0.497	4.900	0.000	Supported
OI → OP	0.232	0.233	0.084	-0.002	0.261	0.466	6.912	0.000	Supported
TQM → CA	0.208	0.207	0.074	0.001	0.043	0.378	2.741	0.006	Supported
TQM → OP	0.292	0.290	0.072	-0.001	0.060	0.344	2.824	0.005	Supported

The first straightforward hypothesis is "CA → OP". The study showed that CA has a positive and direct effect on OP and that the relationship between CA and OP is positive, as

(Beta value = 0.292; T = 5.189; P < 0.05), thus the first direct hypothesis was accepted. This is an acceptable and supported hypothesis. The study's findings are in line with those of other studied (Li et al., 2006; Rahmasari, 2016; Suharto, 2013; Wolf, 2014; Nurdiant et al., 2017; Ploenhad et al., 2019). Their analyses' findings likewise show a strong correlation between CA and OP. They added that raising CA can potentially have an impact on OP improvement. Furthermore, as OP has an impact on raising CA. The second straightforward hypothesis is "EO → CA". The study showed that EO has a positive and direct effect on OP and that the relationship between EO and OP is positive, as (Beta value = 0.138; T = 4.064; P < 0.05), and therefore the second direct hypothesis was accepted, and it is an acceptable and supported hypothesis. This outcome is largely in line with earlier research (Kamau, 2016; Kuratko et al., 2001; Lechner, 2014), which demonstrated the substantial influence of each EO feature on CA. These results offer some early support for the claims made (Wales et al., 2013; Moreno & Casillas, 2008; Messersmith & Wales, 2013) that mediating variables like CA may play a role in the relationship between employment behaviors and firm organizational performance. The third straightforward hypothesis is "EO→OP". The study showed that EO has a positive and direct effect on OP and that the relationship between EO and OP is positive, as (Beta value = 0.358; T = 2.476; P < 0.05), and therefore the third direct hypothesis was accepted, which is an acceptable and supported hypothesis. The results of the present study are consistent with the results of several academic studies conducted (Khandwalla, 1977, Abebe, 2014; Bititci, 2015; Bititci & Taheri, 2019; Cho & Lee, 2018; Homburg et al., 2012; Sainaghi et al., 2017; Smith & Bititci, 2017; Smith & Jambulingam, 2018). All these studies have shown the importance of entrepreneurial orientation in business organizations, the likelihood that these companies will bear risks compared to non-entrepreneurial companies, as well as the positive and noteworthy effect of entrepreneurial orientation on organizational performance. The results of the current study contradict the results of previous research (Chao & Lee, 2018), which indicated that organizational performance is not affected by the entrepreneurial orientation position. An empirical analysis of the components of entrepreneurial orientation and their impact on organizational performance was also conducted by Smith and Jambulingam (2018). The fourth direct hypothesis is "OI → CA". The study showed that OI has a positive and direct effect on CA and that the relationship between OI and CA is positive, as (Beta value = 0.364; T = 4.900; P < 0.05), and therefore the fourth direct hypothesis was accepted, which is an acceptable and supported hypothesis. The current study's findings concurred with those of studies (Barney, 1991; Wang, 2014), all of which established that OI plays a significant role and is the primary cause of CA acquisition. This aligns with the premise of the "resource-based view". They also emphasize how OI is supported by cultural values, which results in the attainment of CA (Chan et al., 2004; Shahzad, 2017). Lastly, this study discovered that OI had dual mediation effects on CA statistically. The results of Eidizadeh et al. (2017) and Wiewiora et al. (2013) suggested OI by itself does not cause a rise in CA were not supported by the current investigation. The fifth direct hypothesis is "OI → OP". The study showed that OI has a positive and direct effect on OP and that the relationship between OI and OP is positive, as (Beta value = 0.232; T = 6.912; P < 0.05), and therefore the fifth direct hypothesis was accepted, which is an acceptable and supported hypothesis. The sixth direct hypothesis is that "TQM → CA". The study showed that TQM has a positive and direct

effect on CA and that the relationship between TQM and CA is positive, (Beta value = 0.208; T = 2.741; P < 0.05), and therefore the sixth direct hypothesis was accepted, which is an acceptable and supported hypothesis. The study is in line with numerous other research projects that have demonstrated the direct relationship between TQM and competitive advantage (Ahmed & Ferdousi; 2020; Othman et al., 2020, Pinandhita & Latief, 2020; Mawarti, 2016; Abimbola et al., 2020; Yanya & Mahamat, 2020) . However, the outcomes demonstrated that overall quality management significantly and favorably affects organizational performance. The seventh direct hypothesis is "TQM → OP". The study showed that TQM has a positive and direct effect on OP and that the relationship between TQM and OP is positive, as (Beta value = 0.292; T = 2.824; P < 0.05), and therefore the seventh direct hypothesis was accepted, which is an acceptable and supported hypothesis. The results of the studies (Al-Shura, 2021; Love et al., 2019; Nasution & Absah et al., 2022) which corroborate the findings on the positive and significant impact of TQM on organizational performance (OP), show that implementing TQM is an effective tool for improving OP in businesses. The current study agreed with these studies. These findings confirm earlier research (Ho et al., 2001; Singh et al., 2020; Abbas, 2020; Omoush et al., 2020) on the possible effects that TQM may have on organizational performance and the effectiveness of TQM projects in general.

7. Conclusion

The study reached an important conclusion that TQM, EO, and OI affect OP positively and directly, in addition to that TQM, EO, and OI affect OP in a direct, positive way, with the use of CA as an intermediary variable.

8. Practical implications

The results of the study may increase the awareness of managers, practitioners and decision makers of the need to integrate the study characteristics of OI, EO and TQM to enhance OP within their businesses. TQM, OI and employer organizations are crucial internal resources that can give companies a CA over competitors by IO efficiency. The study results indicate that a company should prioritize and promote the application of TQM concepts in real-world environments while enhancing the characteristics that distinguish them, such as OI, customer focus, and employee dedication. However, without a clear entrepreneurial direction for the future that considers risk-taking, creativity and proactiveness as qualities of managers and leaders, none of these ideas or components can be put into practice. The results of this study are important because they show that, given some of the challenges associated with implementing TQM, OI and EO, companies should always consider creating a supportive culture to plan and implement any new strategies or practices. Organizational reforms without this culture may lead to catastrophic failure.

9. Limitations

First: this paper is selective and provides opportunities for further studies. However, the paper's findings are limited by its focus only on large local Saudi manufacturing companies. Therefore, it is not permissible to generalize the results of the current study to other manufacturing companies of different sizes. In addition, the researcher does not have the right to generalize the results to other companies operating outside the Kingdom of Saudi Arabia. More research can be conducted in other manufacturing sectors, such as large international manufacturing companies, medium and small industrial companies, and companies in other sectors, such as the services sector, the marketing sector, and others. Second: self-reported data was used, using a questionnaire tool. A future study could use an on-site survey process where the researcher assists the respondent during the survey without ensuring that staff complete the survey in person. Third: qualitative research on TQM, EO, and OI. A deeper understanding of how companies manage them is necessary. Future research will conduct interviews or conduct site visits with executives and employees to further explore these activities.

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