Sys Rev Pharm 2020;11(9):982-992
A multifaceted review journal in the field of pharmacy

Moderating Role of IT Adoption and Mechanism of Dynamic Capabilities on Indonesian Pharmaceutical Firms Performance

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ABSTRACT
In 'today's contemporary world, multiple factors determine any organization's productivity in several contexts, but what are those factors and through which underlying mechanisms those factors affect the organizational productivity is a question of real concern. On the other hand, organizations are encouraged to adopt the technology to survive in the economies' ontogeny. It is a fact that businesses not embracing the philosophy and practice of application of information technology will be at a competitive disadvantage. The current study was established to examine the direct as well as indirect impact of entrepreneurial orientation, total quality management, and business innovation on organizational productivity in the presence of dynamic capabilities as a mediator. Further, the interactive effect of IT adoption with dynamic capabilities on organizational productivity was investigated. Data was collected from the managers and owners of the pharmaceutical companies of Indonesia. SmatPLS 3 was used to study the measurement and structural model. Results revealed that all direct and indirect associations are positive and significant. Finally, the current study offers some valuable insights for scholars and practitioners.

Keywords: Entrepreneurial Orientation, Total Quality Management, IT Adoption; Business Innovation; Organizational Performance and Dynamic Capabilities

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INTRODUCTION

Organizations face many challenges in the business environment nowadays based on the rising number of competitive disputes among the firms that ultimately demand better performance of the firms (Masa'deh, Al-Henzab, Tarhini, & Obeidat, 2018). Therefore, organizations need to focus on how they can sustain today's uncertain economic environment based on the understanding that a firm's actions can significantly impact their performance (Jimoh, 2019). Some of such initiatives upon which organizations can focus are entrepreneurial orientation, total quality management, and business innovation. Past research has emphasized the importance of exploring antecedents of organizational performance (Chienwattanasook & Jermsittiparsert, 2019). The current study was an attempt to examine the impact of these three initiatives on organizational performance. Organizational performance (OP) is the extent to which an organization accomplishes its set goals that reflects the competency of that firm (Rezaei & Ortt, 2018). It shows the output of a business through which a company measures that either it has been able to reach its target or not and may include financial performance, market performance, etc. (Jimoh, 2019). The major focus of this research is on role of IT adoption in Indonesian pharmaceutical companies along with three determinants (entrepreneurial orientation, total quality management, and business innovation).

Entrepreneurial orientation (EO) reflects activities such as innovation, riskiness, and proactiveness that lead to the firms increased performance (Cui, Fan, Guo, & Fan 2018). Past studies (Yamamori, 2019; Basco et al., 2020; Cui et al., 2018; Gultom et al., 2020) have reflected the relationship between entrepreneurial orientation and organizational performance with conflicted results; therefore, in the pharmaceutical organization, this association needs to be further investigated. In a recent meta-analysis on entrepreneurial orientation and firm performance, Soares and Perin (2020), instigated researchers to continue research in this area. Moreover, Cui et al. (2018) asserted that future researchers should identify some mediators between the association of entrepreneurial orientation and firm performance. Therefore, the current study aims to fill the gap in the entrepreneurship area by examining the effect of entrepreneurial orientation on organizational performance and investigating the underlying mechanism of dynamic capabilities through which pharmaceutical firms leverage the benefits of entrepreneurial orientation.

Total quality management (TQM) is another antecedent of organizational performance, which refers to continually improving the firm's overall structure, including products/services and processes to satisfy customers and employees (Sadikoglu & Olcay, 2014). TQM is widely used by firms to get a competitive edge by enhancing the overall quality (Abdullahi et al., 2020). Several studies analyzed the relationship between TQM and OP (Bhaskar, 2020; Choudhari, 2018; Sweis, Elhawa, & Sweis, 2019). The studies on exploring the underlying mechanism between these relationships are rare in literature. So, this study will fill this gap by linking dynamic capability as a mediator in TQM and OP.

The third precursor of the current study is business innovation, which is considered an important key factor when introducing a new product or service which provides a competitive edge for the organization (Antunes, Quirós, & Justino, 2018; Sadeghi, Sajjadi, Nooshabadi, & Farahani, 2018). Dynamic capabilities are the extent to which an organization implements some novel activities in response to environmental variations (Takahashi et al., 2016), and that may ultimately affect firm performance. Recently the topic of dynamic capabilities got the attention of many researchers (Reyes-Santiago et al., 2019). Thus, this study proposes dynamic capabilities as an underlying mechanism in the relationship of entrepreneurial orientation, TQM, and business innovation with organizational performance. Various studies have linked the dynamic capabilities with organizational performance (Sawatsuk et al., 2018; Takahashi et al., 2016), but this study is unique in the way it is presenting the dynamic capabilities construct as a mediator of the study.

On the other hand, as the commercialization and usage of Information Technology (IT) are enhanced worldwide, the pharmaceutical organizations are looking for tactics to fortify them to attain maximum productivity (Cesaroni, Consoli, & Sentuti, 2011). In their study, Sani et al. (2020) asserted that the adoption of IT helps organization extraordinarily by facilitating them to approach the perfect kind of database at an ideal time. However, the past studies related to IT adoption reflect that minimal research has been conducted in the context of IT adoption and usage in pharmaceutical firms despite its enormous growth in this context (Tang et al., 2020). Therefore, the current research unveiled the interactive effect of the IT adoption with dynamic capabilities on the organization's productivity of the pharmaceutical firms. Finally, for the first time, the current research introduces three determinants of organizational performance in a single study. Second, it presents the unique underlying mechanism in these relationships i.e., dynamic capabilities. Third, it will explore the direct relationship of three constructs (entrepreneurial orientation, total quality management, and business innovation) on dynamic capabilities. Fourth, it will test the direct link of dynamic capabilities with the organizational performance following the analysis of the moderating role of IT adoption in between the association of dynamic capabilities and organizational performance. Further, the current study will be beneficial for scholars and practitioners in terms of its implications.

LITERATURE REVIEW

Antecedents of organizational performance:

Entrepreneurial Orientation.

Entrepreneurial orientation is defined with respect to the firm that is to be engaged in activities such as innovation, risk-taking, and proactiveness to compete in the market (Miller, 1983). Past studies (Arzubiaga et al., 2018; Basco et al., 2020; Cui et al., 2018; Rezaei & Ortt, 2018) established a positive relationship between entrepreneurial orientation and organizational performance. In a recent meta-analysis on the EO-OP relationship, Soares and Perin (2020), argued that entrepreneurial orientation is vital in determining the ' 'firm's performance. Due to entrepreneurial activities, a firm gets engaged in activities like introducing new products proactively that gives the business a great advantage. In another study, Gunawan, Jacob, and Duysters (2016) discussed that a firm's success must be engaged in entrepreneurship. Similar were the findings of Rezaei and Ortt (2018), who stated that those organizations that are actively engaged in entrepreneurial orientation are more productive. Thus, based on these arguments and past literature, it is posited that.

H1a: Entrepreneurial orientation positively is associated with organizational performance.

Total Quality Management

Total quality management refers to continually improving the overall quality of the firm (product/services/processes/ employees) to enhance the firm's ability to compete in the market (Goetsch & Davis, 2016). Continuous improvement is an effort to minimize errors by enlightening the processes of the firm (Sweis et al., 2019). Many studies linked total quality management with organizational performance (Abdullahi et al., 2020; Androwis et al., 2018; Bhaskar, 2020; Choudhari, 2018). These studies used various methods to measure firm performance, such as financial performance, quality measure, customer satisfaction, etc. TQM has the aptitude to improve business performance and customer satisfaction (Jimoh, Oyewobi, Isa, & Waziri, 2018). In a recent review on TQM-OP by Sweis et al., (2019), it was argued that TQM is extensively used to make the performance better, which can satisfy customers, maximize the profitability and overall quality. The study has further reviewed that TQM has a positive impact on the organization's overall performance, including its employee's productivity. Additionally, in a recent study, Mahfouz (2019) appraised that organizational performance is the outcome of the proficiency of people, organizations, and processes. Thus, based on these arguments, the authors present the following relationship between TQM and organizational performance.

H1b: Total quality management is positively associated with organizational performance

Business Innovation.

Innovation is defined as the execution of new products, processes, or new markets (Schumpeter, 1934) as it can escalate the organization's positive performance (Feleke, 2018). A recent study conducted by Widjaja, Sumintapura, and Yani (2020) reflected that there is a strong association between innovation and performance, but it is not necessary that the relationship would be positive, so it urged by the researchers to evaluate this link further. Past studies have investigated the impact of innovation on performance using different terms related to innovation (Wasike, 2017). Migdadi (2019) further stated that an organization must apply a holistic innovation to get enhanced performance. Moreover, to remain dominant in the market and achieve maximum productivity, a firm needs to get involved in innovation-related activities (Sciarelli et al., 2020). Based on the fact that various studies established the positive relationship between innovation and organizational performance (Kumar & Sundarraj, 2016), the current study hypothesizes that.

H1c: Business innovation is positively associated with organizational performance

Entrepreneurial orientation, Total Quality Management, Business Innovation, and dynamic capabilities

Entrepreneurial firms explore new opportunities before they can be discovered by their competitors (Cui et al., 2018). When an organization develops entrepreneurial opportunities, it implicates in risk-taking innovation and proactiveness that enable it to handle problems and

overcome all hurdles faced by the organization (Kim, 2018). Dynamic capability is the extent to which a firm responds to changing business environment (Monteiro, Soares, & Rua, 2019) and adopt constructive changes (Hayter & Cahoy, 2016). Based on the past research and definitions of entrepreneurial orientation and dynamic capabilities, we can suggest that it can actively respond to the market changes when a firm is involved in entrepreneurial activities, it can actively respond to the market changes. Therefore, it is hypothesized that.

H2a: Entrepreneurial orientation is positively associated with the dynamic capabilities of the pharmaceutical organizations.

The purpose of total quality management is to cultivate and sustain in the market competition by enhancing the efficiency of processes and focusing on 'customer's needs and satisfaction (Firman & Thabrani, 2018). Today's customers not only focus on low prices but also require high-quality products. So, companies can get a competitive advantage by providing unique and innovative products by focusing on total quality management after thorough research (Abbas, 2020). Thus, TQM is the prominent factor to compete in the market. Past studies have linked the total quality management with constructs like corporate sustainability and performance, etc. (Pambreni et al., 2019) that are basic requirements to survive in the external and internal environment. Thus, here it can be assumed that dynamic capabilities which refer to firm's ability to answer to environmental changes are dependent upon the total quality management. Further, managing the overall quality means that organizations have the sensing ability to perform (Zhou, Gu, Zaho 2018), which is a core of dynamic capability. Consequently, this study presents the following hypothesis:

H2b: Total quality management is positively associated with the dynamic capabilities of the pharmaceutical organizations

Nowadays, for a business's success, it is necessary to develop innovation that refers to continuously putting new ideas about products, services, and processes for the better performance of the firm. In this global economic world, organizations are competing to sustain themselves in the market (Nedal, & Alcoriza, 2018). As consumers demands are dynamic,an organization has to be active in response to customers' needs, resulting in overall innovation (Luczak, & Kalbag, 2018). Thus, innovation can be an important predictor of dynamic capability. According to Soares and Perin (2020), business innovation is fundamental to any business success, but to get that success, firms need to be dynamic to respond early and to fulfil the customer requirements before competitors. This study assumed that there is a direct and positive relationship between business innovation and dynamic capabilities.

H2c: Business innovation is positively associated with the dynamic capabilities of the pharmaceutical organizations

Dynamic capabilities and organizational performance

Recently, the relationship between dynamic capabilities and organizational performance has been a hot topic in organizational research (Reyes-Santiago et al., 2019). In a meta-analysis, it is argued that the firm's dynamic capability aids in problem-solving according to quick and up-to-date decisions that help the firm in enhanced efficiency (Danneels, 2016) and gives the firm a competitive edge in the marketing environment. Dynamic capability is an extent to which the organization can commence positive changes in its business according to environmental changes (Hayter & Cahoy, 2018). The firms in dynamic environments can get a competitive edge by continuous positive changes in the overall business, which may enhance financial performance. Based on definitions and past literature, it can be argued that when a firm can quickly respond to sudden changes in the marketing environment, it indicates that the organization is performing well compared to other competitors of the market. Therefore, it is hypothesized that.

H3: Dynamic capabilities are positively associated with organizational performance

Mediation

Many researchers (Basco et al., 2020; Cui et al., 2018; Rezaei & Ortt, 2018) have already proved the positive association between entrepreneurial orientation and organizational performance, but the current study wants to analyze this link by employing dynamic capabilities as a mediator. Dynamic capabilities are the extent to which a firm incorporates, syndicate, and creates holistic resources, that ultimately affect the ' 'firm's performance (Takahashi et al., 2016). The area of dynamic capabilities recently attracted many researchers (Laaksonen & Peltoniemi, 2018). Various studies checked the mediating effect of dynamic capabilities between different constructs. For example, a recent study by Ledesma-Chaves (2020) explored the mediation of dynamic capabilities in the relation between the increased number of foreign markets and export performance. Another study conducted by Wu, Chen, and Jiao (2016) analyzed the underlying mechanism of dynamic capabilities in between the relationship of international diversification and innovation performance. The current study argues that when a firm has the entrepreneurial capacity, it means that it can respond to environmental changes accordingly that leads to dynamic capabilities. These dynamic capabilities will further affect organizational performance in a positive direction. Thus, it is hypothesized that.

H4a: Dynamic capabilities mediates the relationship between entrepreneurial orientation and organizational performance

In between the relationship of total quality management and organizational performance, various mediators have been examined in the past. For example, Bhaskar (2020) proved that market orientation mediates the TQM-OP relationship. Another study conducted by Mahfouz (2019) described the positive relationship between TQM and performance by using HRM practices and innovation as mediators of the study. Jimoh et al. (2018) also checked the mediating effect of "strategy for continuous improvement" between the TQM-OP relationship. Based on the understanding that the focus of total quality management is upon employees, customers, improved processes, and systems. Conclusively, that means an organization which manages its overall quality and can adopt environmental changes and responds quickly to these changes with the help of dynamic capability will eventually experience the enhanced level of performance for the organization. Therefore, the current study thus suggests that total quality management of a firm makes its way to the dynamic capability, which at the end signifies the improved performance. Therefore, considering these studies, we can assume that dynamic capabilities will mediate the relationship between TQM and organizational performance. Thus, it is hypothesized that:

H4b: Dynamic capabilities mediates the relationship between total quality management and organizational performance

Many researchers linked business innovation with improved organizational performance (Antunes et al., 2018; Migdadi, 2019; Sciarelli et al., 2020; Widjaja et al., 2020). But these studies scrutinized the direct linkages between the two constructs. In contrast, the current study is established to bridge the gap regarding the involvement of the underlying mechanism between the BI-OP relationship. This study assumes that there may be some mechanism i.e., dynamic capabilities, through which innovation will impact on ' 'firm's performance. As when a firm introduces innovations in its overall business activities, it can easily compete in the market by attracting customers towards its business. It means that the organization is answering internal and external environmental changes that may lead to improved performance. Consequently, this study presents the dynamic capabilities as an underlying mechanism between business innovation and organizational performance. Therefore, it is hypothesized that.

H4c: Dynamic capabilities mediates the relationship between business innovation and organizational performance

Moderation

The technological progress, application, and implementation of IT is a significant driving force behind many socio-economic changes in the current world situation (Antonelli & Fassio, 2014). Besides, information technology (IT) is sourced to reuse and share knowledge throughout the pharmaceutical/ biotechnology firms (Liu, Zeinaly, 2020). As organizations are encountered with variations in the business environment on continuous bases, therefore capabilities to handle such unpredictable situations when coupled with modern IT infrastructure results in higher productivity (Tang et al., 2020). Likewise, Dong and Yang (2015), in their study, revealed that systems that are highly equipped with information technology result in an ease of transfer of knowledge across the firms, and this transfer of knowledge further enhance the productivity of the firm on the whole. A study by Khan et al. (2019) resulted in the positive impact of dynamic capabilities on organizational performance, indicating the importance of a firm's dynamic capabilities to deal with different circumstances. On the other side, there is a dearth of literature regarding the role of IT adoption as a moderator between the association of dynamic capabilities and organizational performance. Therefore, the current study is established to address this gap in the literature and posited that.

H5: IT adoption moderates the association between dynamic capabilities organizational performance such that the relationship stronger in case of higher values of IT adoption.

Theoretical Framework

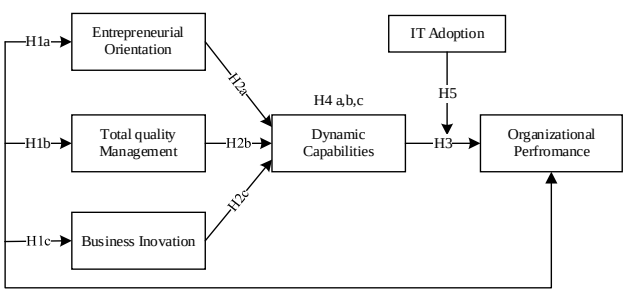

Figure 1. Theoretical Framework of the study

RESEARCH METHODOLOGY

In a quantitative field survey, a questionnaire consisting of 31 items was developed and distributed among the managers and owners of the pharmaceutical firms located in different cities of Indonesia. Managers and Owners are aware of the firm's strategies and critical decisions, so they can respond to the questionnaire accurately. Before distributing the survey questionnaire, several pharmaceutical firms were approached by the researchers randomly. Researchers tried to meet the managers and owners using personal references and explained to them the reason for conducting the study and assuring them of anonymity for voluntary participation. After their consent, they were requested to allow the distribution of questionnaires among the managerial level employees. In total, 450 questionnaires were distributed, out of which the author received 302 questioners after two 'months' follow-up. This data was further scrutinized to remove the responses with unengaged patterns and missing values. A final data set of 273 was finally analyzed for results with a final response rate of 61%.

Measures of the Study

A survey questionnaire consisting of 31 items was designed to measure all the constructs of the study. A three-item scale ranging from strongly disagree (1) to strongly agree (5) and adopted from June, and Mahmood (2011) was used to measure the organizational performance. The items were comprised of the statements regarding the productivity and cost-effectiveness of the pharmaceutical organizations. To measure the entrepreneurial orientation of the firm, the current study used the scale consisting of 6 items ranging from strongly disagree (1) to strongly agree (5) and adapted from Hughes and Morgan (2007). Total quality management was measured by a scale comprised of 5 items ranging from strongly disagree (1) to strongly agree (5) and adapted from Alolayyana et al. (2011). The current study adopted a 5 items scale of business innovation by Calik et al. (2017). The Likert scale ranging from 'Not at all representative (1) to Strongly representative (5) was used to measure innovation capability. To measure Dynamic Capabilities, the current study used a scale developed by Wilden et al. (2013). This scale contains 7 items, with a Likert scale ranging from 1 (Rarely) to 5 (Very often). To measure the IT adoption a 5-items scale used by Sani et al., (2020) and developed by Zhu et al. (2006) was used with a Likert scale ranging from 1-strongly disagree to 5-agree.

Demographic Characteristics of the Respondents

The sample characteristics depict that about two-thirds of the respondents (67.2%) were male, and 32.8% were female. Most of the respondents (43.3%) were in the age bracket of 31-40 years, 32.2% were 41-50 years old, and 24.5% were above 50 years of age. The majority of the respondents (68.7%) were D-pharmacists, and the remaining 31.3% had either a master's degree or graduation degree depending upon the nature of the job and designation of the respondents. In terms of experience, there were mixed findings, as 27.4% of respondents reported the experience of 1-5 years, 30.2% reported 5-10 years of experience, whereas 25.3% and 17.1% reported 10-15 years and more than 15 years of experience, respectively. Finally, the respondents of the study were of diverse designations, including area managers, regional heads, HR managers, Project managers, directors, heads of the departments, and team

leaders, etc. Thus, the sample of the study was a true repressive of the overall population.

DATA ANALYSIS AND RESULTS

This study used SPSS version 25 to perform descriptive statistics, correlation analysis, and one-way ANOVA to find out the information about control variables. ANOVA results revealed that the experience of the respondents had a significant and positive effect on the dependent variable (organizational performance); therefore, the experience was controlled during further analysis to avoid the biases in the results. Whereas SmartPLS 3 was used to access the measurement and structural model. To check the nonresponse bias and the possibility of a significant difference between the means of the responses received on time with those received later, an independent t-test was conducted. Results revealed no significant difference between the means. To test the full model, the SEM technique by applying partial least square (PLS) with SmartPLS3 was used (Mansoor, Fatima, & Ahmed, 2020). A two-stage analytical procedure was adopted as to validate the instruments; the measurement model was tested first, followed by the testing of hypothesized associations via structural model.

Assessing the Measurement Model

To investigate the psychometric properties of the measures, confirmatory factor analysis was conducted by using SmartPLS3. Cronbach's α and composite reliability (CR) were calculated to assess the reliability of measures. Table 1 depicts the reliability of all the reflective measures on the basses of values of Cronbach's α (above 0.70) and CR. Besides, 'measures' "convergent and discriminant validity" was assessed (Mansoor, Awan, Syed, 2020). As "factor loadings" of all indicator variables were => 0.60 with significant loading of each item ($p < 0.001$) onto its underlying variable and "average variance extracted" AVE of latent variables was above 0.50 for all study constructs, therefore, "convergent validity " was established.

Table 1. Factor loadings, reliability, and validity

Constructs	Factor Loadings						AVE	CR	Cronbach's α
	1	**2**	**3**	**4**	**5**				
Environmental Orientation							0.596	0.898	0.863
EO1	0.846								
EO2	0.836								
EO3	0.777								
EO4	0.792								
EO5	0.733								
EO6	0.626								
Total Quality Management									
TQM1		0.681					0.501	0.831	0.809
TQM2		0.626							
TQM3		0.721							
TQM4		0.786							
TQM5		0.705							
Business Innovation							0.546	0.857	0.818
BI1			0.647						
BI2			0.709						
BI3			0.795						
BI4			0.772						
BI5			0.763						
Dynamic Capabilities							0.597	0.912	0.879
DC1				0.642					
DC2				0.771					
DC3				0.790					
DC4				0.714					
DC5				0.841					
DC6				0.839					
DC7				0.794					

Organizational Performance							0.543	0.780	0.791
OP1					0.796				
OP2					0.750				
OP3					0.659				
IT Adoption							0.608	0.903	0.801
ITA1						0.813			
ITA2						0.827			
ITA3						0.784			
ITA4						0.786			
ITA5						0.696			

"Note: CR, composite reliability; AVE, average variance extracted"

Discriminant Validity

Henseler. Ringle and Sarstedt (2015) suggested that Heterotrait-Monotrait (HTMT) ratio is a more accurate measure of discriminant validity while using smart PLS. The value of the HTMT ratio should be less than 0.9 as depicted in table 2 that all values were less than 0.9 for the entire model.

Table 2. Heterotrait-Monotrait Ratio

Constructs	**Mean**	**STD**	**1**	**2**	**3**	**4**	**5**	**6**
Environmental Orientation	3.77	0.055	**0.772**					
Total Quality Management	4.13	0.071	0.612	**0.707**				
Business Innovation	4.01	0.044	0.642	0.707	**0.739**			
Dynamic Capabilities	3.81	0.079	0.523	0.603	0.629	**0.773**		
Organizational Performance	4.21	0.040	0.416	0.554	0.642	0.478	**0.736**	
IT Adoption	4.09	0.057	0.397	0.454	0.352	0.428	0.398	**0.736**

Note: The square roots of AVEs of the constructs are shown in bold in diagonal.

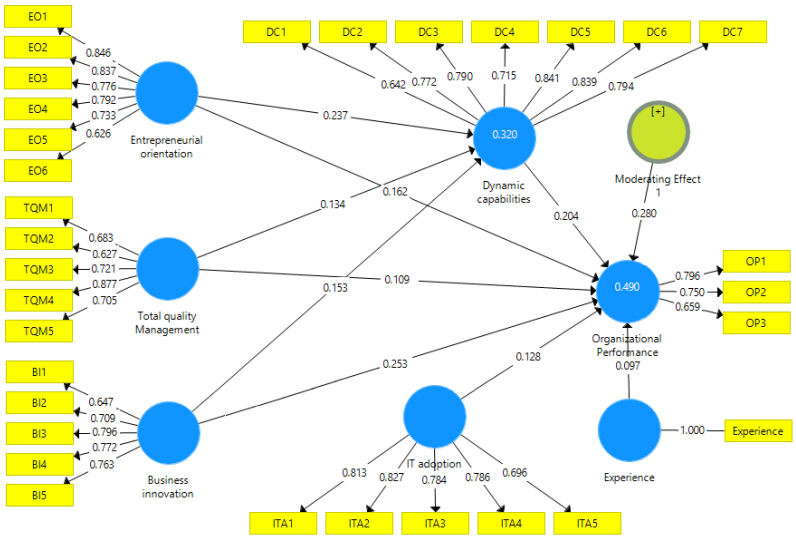

Figure 2. Full Measurement Model

Assessing the Structural Model

The bootstrapping technique was employed to assess the structural paths. To test the hypotheses, 500 subsamples were used. Hypothesized results were confirmed through ß-coefficient, t-value, and p-value. At the same time, overall model fitness or change in the model was measured by the coefficient of Determination (R^2). The results of the R^2 show that there was a 49% change in organizational performance due to all direct as well as mediating variables. It shows a good fit for the model. R^2 results also revealed that there was a 32% change in the dynamic capabilities of the pharmaceutical organizations based on entrepreneurial orientation, total quality management, and business innovation in the organization. These values

of R^2 represent a good fit for the complete model with all hypothesized associations.

Direct hypothesis

In table 3 the results presented show that entrepreneurial orientation, total quality management and business innovation in the pharmaceutical organizations are positively and significantly related to organizational performance (ß = .162***, t=3.602), (ß = .109**, t=2.226), (ß = .253***, t=5.097) respectively. Results further depicted that entrepreneurial orientation, total quality management and business innovation in the organization are positively and significantly related to the dynamic capabilities of the pharmaceutical firms (ß = .237***, t=4.681), (ß = .134**, t=2.647), (ß = .153**, t=2.927) respectively. Likewise, the pharmaceutical organizations' dynamic capabilities were found to be positively and significantly associated with organizational performance (ß = .204***, t=4.477). Therefore, all direct hypotheses i.e., H1a, H1b, H1c, H2a, H2b, H2c, and H3 are fully supported.

Mediating Hypothesis

As depicted in Table 3, the mediation hypotheses H4a, H4b, and H4c are also supported. An indirect and positive effect of the entrepreneurial orientation of the pharmaceutical organizations was found on organizational performance in the presence of dynamic capabilities (B=.173**, t= 3.709, p < 0.001). Similarly, the dynamic capabilities of the pharmaceutical firms mediated the association between total quality management and organizational performance (B=.189***, t= 3.937, p < 0.001). Also, the dynamic capabilities of the pharmaceutical organizations mediated the association of business innovation with organizational performance (B=.221***, t= 4.527, p < 0.001). Further, the non-zero values for lower and upper limit confidence intervals mean that results were significant. These results signify the acceptance of mediation hypothesis H4a, H4b, and H4c.

Moderating Hypothesis

To assess the moderating effect of IT adoption in PLS-SEM, an interaction term between the moderator (IT adoption) and the predicting variable (dynamic capabilities) was created using the product indicator approach to examine its effect on the organizational performance. The results indicate that the hypothesized moderation effects of IT adoption were supported. Specifically, the results indicated significant interaction terms, dynamic capabilities IT adoption (β =.280**, t-value = 6.284, p < .000) on the relationship of dynamic capabilities and organizational performance. Following the moderation result, the R2 change between the main effect model and model with moderation effect was also examined. The R2 for the main effect model for organizational performance was 0.351 and its R2 with the interaction effect was 0.490. The R2 change suggested that the inclusion of terms increased the explanation power by 28.36%, for organizational performance.

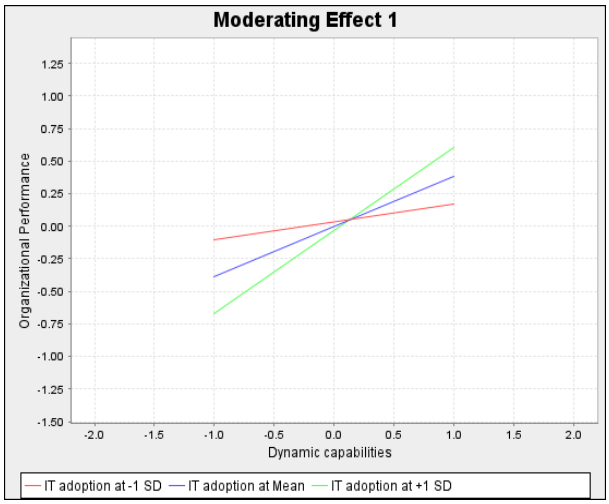

Figure 3. Interaction plots for a moderating effect on the association of dynamic capabilities and IT adoption.

Drawing from the significant interaction's effects, the plot was described to interpret the nature of interaction following the steps used by Dawson (2014). As shown in Figure 3, the line labelled for a higher level of IT adoption has a steeper gradient compared to a lower level of IT adoption for the association of dynamic capabilities with organizational performance. Thus, hypothesis H5 was supported. Further, table 3 depicts the results for direct, indirect, and moderation hypothesized relationships.

Table 3. Hypothesis Testing Results

	Hypothesized relationships	Std. Beta	t-value	*p*-value	Findings
H1a	EO→OP	0.162	3.602	0.000	Supported
H1b	TQM→OP	0.109	2.266	0.018	Supported
H1c	BI→OP	0.253	5.097	0.000	Supported
H2a	EO→DC	0.237	4.681	0.000	Supported
H2b	TQM→DC	0.134	2.647	0.013	Supported
H2c	BI→DC	0.153	2.927	0.010	Supported
H3	DC→OP	0.204	4.477	0.000	Supported
H4a	EO→DC→OP	0.173	3.709	0.000	Supported
H4b	TQM→DC→OP	0.189	3.931	0.000	Supported
H4c	BI→DC→OP	0.221	4.527	0.000	Supported
H4	ITA*DC→OP	0.280	6.284	0.000	Supported

Where: EO= Environmental Orientation**, TQM**= Total Quality Management**, BI**= Business Innovation**, DC**= Dynamic Capabilities**, OP**= Organizational Performance

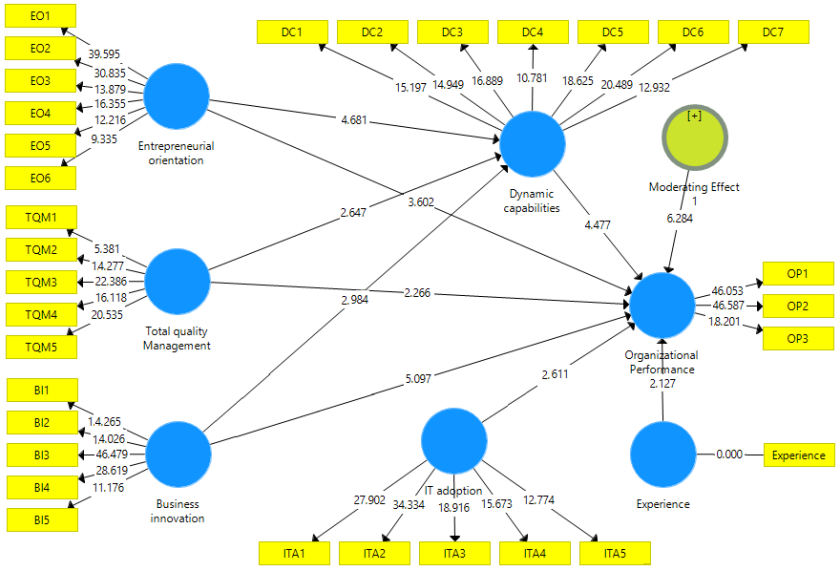

Figure 4. Full Structural Model

DISCUSSION, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Findings of the study

All hypotheses of the study were found to be supported, showing that entrepreneurial orientation, total quality management, and business innovation in the pharmaceutical organizations are positively and significantly related to organizational performance. Likewise, results further depicted that entrepreneurial orientation, total quality management, and business innovation in the organization are positively and significantly related to the dynamic capabilities of the pharmaceutical firms. Also, the dynamic capabilities of the pharmaceutical organizations were found to be positively and significantly associated with organizational performance. Finally, an indirect and positive effect of entrepreneurial orientation, TQM, and business innovation in the pharmaceutical organizations was found on organizational performance in the presence of dynamic capabilities as an underlying mechanism.

Findings of the current study regarding the association of entrepreneurial orientation are similar to the results of the (Arzubiaga et al., 2018; Basco et al., 2020; Cui et al., 2018; Rezaei & Ortt, 2018) based on the fact that firms which focus more on entrepreneurial orientation perform better. Likewise, Many studies linked total quality management with organizational performance (Abdullahi et al., 2020; Androwis et al., 2018; Bhaskar, 2020; Choudhari, 2018) based on the understanding that TQM is extensively used to make the performance better, which can satisfy customer, maximize the profitability and overall quality. Likewise, our results regarding the association of business innovation with the organization's performance are in line with the findings of (Widjaja et al., 2020; Kumar & Sundarraj, 2016) as organizations need to apply a holistic innovation to get the enhanced performance.

Similar to the findings of other scholars (Monteiro et al., 2019; Hayter & Cahoy, 2016), results of the current study imply that when an organization develops entrepreneurial opportunities, it can actively respond to the market changes based on its dynamic capabilities. Adding to that present study supports the arguments of the scholars (Abbas, 2020; Pambreni et al., 2019) that dynamic capabilities that refer to a firm's ability to answer the environmental changes are dependent upon the total quality management and business innovation practices of the organizations.

Finally, based on the direct association suggested by many scholars between entrepreneurial orientation and organizational performance (Basco et al., 2020; Cui et al., 2018; Rezaei & Ortt, 2018), total quality management and organizational performance (Bhaskar 2020; Mahfouz,2019) and business innovation and organizational performance (Antunes et al., 2018; Migdadi, 2019; Sciarelli et al., 2020; Widjaja et al., 2020). The current study filled the gap regarding mediatory role of dynamic capabilities among these associations and found positive results based on the fact that through dynamic capabilities, entrepreneurial orientation, TQM and innovation impacts the firm's performance in a positive way. Moreover, the results proved the moderating role of IT adoption in between the association of dynamic capabilities and organizational performance, reflecting that when dynamic capabilities are coupled with the IT adoption, the performance of the firms automatically increases.

Theoretical Implications

The current study has numerous contributions to organizational research. First, this study presented distinct antecedents of organizational performance, which are entrepreneurial orientation, total quality management, and business innovation. As most of the previous studies focused upon a single predictor of organization performance, but this study presents new visions by analyzing three antecedents of organizational performance in a single study. Secondly, this study presents a novel underlying mechanism of dynamic capabilities in the relationship between important organizational initiatives i.e., entrepreneurial orientation, total quality management, and business innovation and organizational performance. By doing this, the current study filled the gap in organizational performance literature regarding the underlying mechanism (Cui et al., 2018). Thirdly, the recent study introduced a novel moderating role of IT adoption to enhance the positive impact of dynamic capabilities on firms' productivity. Fourth, this study contributes to the body of knowledge that, when an organization is indulged in entrepreneurial

activities, introduces innovations in all its system, maintains the quality of its products and services and adopts the latest technologies it ultimately impacts the overall performance of the firm. This study also raises the importance of dynamic capabilities for attaining higher productivity. Thus, our findings suggest that for better performance of the firm, it is necessary to concentrate on quality, innovation, IT adoption, and to be responsive to the internal and external environment. Therefore, this study concludes that entrepreneurial orientation, total quality management, and business innovation, dynamic capabilities, and IT adoption conjointly contribute to making organizational performance better.

Practical implications

Along with theoretical contributions, the current study also has some implications for managers and practitioners. The pharmaceutical organizations should realize the importance of their engagement in entrepreneurial and innovation activities based on high competitiveness in the pharmaceutical industry and the continuous need for innovations in medicines to find the cure for lethal diseases. This study also suggests to managers that it is true that entrepreneurial orientation is important, but it is not sufficient as there must be a mechanism through which entrepreneurial orientation impacts organizational performance. Further, it also recommends regarding total quality management that firms should focus upon managing their quality because customers largely get attracted to better quality as compared to other factors such as low price or nice ambiance, etc. In addition, for making a good profit and overall better performance, it is necessary for managers and organizations that they should concentrate on continuous innovation. Moreover, regarding dynamic capabilities, managers should consider the industry trends while making their marketing strategies along with adopting the latest technologies. Based on the understanding that the accessibility of modern technology and data from the practice of IT provides motivation, direction, and simulation for the employees to apply it resulting into improved performance. Thus, managers and owners of organizations can benefit from this framework to enhance their organization's performance. Further, managers should also motivate their employees to be more conscious while dealing with customers by providing the best service and fulfilling their needs (Androwis et al., 2018; Dalle et al., 2020). Additionally, this study is to help organizations in understanding that they should not only concentrate on the current needs of the customers, but also continuous innovation is vital for a better firm's performance.

Limitations and future research directions

Like other studies, the current study also has some limitations, each of which directs to new research. First, the sample size of the study was limited, which may imply the method biases in the study; therefore, it suggested future researchers to collect more data to get more accurate results. This study used cross-sectional data, future researchers can apply a longitudinal research design to get a clearer view of the antecedents of organizational performance and the mediatory process to achieve competitive advantage. This study shows the significance of dynamic capabilities that how it makes the way of entrepreneurial orientation, total quality management, and business innovation towards business performance. Future research should seek to present new mediators between predictors and organizational performance. There is also a need to ponder more determinants of organizational performance i.e. employee's role, technological innovation, etc. Finally, future researchers may use organizational culture as a contextual variable that may enhance the positive relationship between entrepreneurial orientation and organizational performance.

ACKNOWLEDGMENT

The paper was coming from individual research without support funding and in collaboration with universities: ULM Banjarmasin, UPR Palangka Raya, IIK Strada Kediri, UNISKA MAB Banajarmasin, and IBTPI Pekanbaru. We would like to express our very great appreciation to the rector of those universities who supported us facilities in doing research, writing paper, and publishing in international reputable journal.

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