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## Article

Enterprise resource planning, entrepreneurial orientation, and the performance of SMEs in a South Asian economy: The mediating role of organizational excellence

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## MANAGEMENT | RESEARCH ARTICLE

# Enterprise resource planning, entrepreneurial orientation, and the performance of SMEs in a South Asian economy: The mediating role of organizational excellence

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**Abstract:** The key objective of the current study is to examine the effect of enterprise resource planning and entrepreneurial orientation on organizational performance. In addition to that, the study also examines the mediating role of organizational excellence in the relationship between enterprise resource planning and entrepreneurial orientation and OP. The data was collected from the managers of manufacturing SMEs in Pakistan. We distributed 340 questionnaires to the selected respondents, out of which 260 were returned indicating a response rate 76.47%. The SEMP-LS was used for the data analysis. The relationship between them is interrelated where one leads to the other. In this study, the relationship between organizational excellence and organizational performance was found to be positive and significant. In addition, the result showed that organizational

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Rabeeya Raouf (PhD) works as professor in the Lahore Business School, the university of Lahore . Alongside, she serves as the dean in Faculty of Management Sciences, University of Lahore. She has been associated with the field of academics since 1999. Her research interest areas are based on economics, entrepreneurship, finance and human resource management. Her current research projects are Social capital, business coping strategies, Pyramidal ownership and entrepreneurial performance.”

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### PUBLIC INTEREST STATEMENT

In conclusion, the present study was conducted to extend the existing knowledge concerning the implications of enterprise resource planning, entrepreneurial orientation and organizational excellence . In this study, the research model presents a unique and unconventional theoretical framework that may be employed in future studies for measuring the effectiveness of enterprise resource planning, entrepreneurial orientation and organizational excellence. The proposed framework in this research is unique and original because it integrated the role of organizational excellence in interpreting the effects of enterprise resource planning, entrepreneurial orientation and organizational excellence on the organization’s overall performance. The principal reason for proposing this framework was to overcome the issue of inconsistent outcomes, in terms of enterprise resource planning, entrepreneurial orientation and organizational excellence effects on organizational performance, as well as to explain the reason why desired outcomes could not be achieved through these strategies.

excellence is a partial mediator in this relationship according to the value of Variance. The relationship between enterprise resource planning, as a composite construct, and the OP was found to be positive and significant at a 0.01 level of significance; therefore, the hypothesis is supported. The study will be helpful for policy makers, enterprises owners, students, and researchers in understanding the issues related to enterprise resource planning, organizational excellence, entrepreneurial orientation and organizational performance of SMEs operating in Pakistan.

**Subjects: Testing, Measurement and Assessment; Economics; Business, Management and Accounting; Philosophy of Social Science**

**Keywords: enterprise resource planning; Entrepreneurial Orientation; organizational excellence; SME; Pakistan**

### 1. Background

In the constantly changing business environment of today, organizations are required to stay vigilant for opportunities and challenges in their external and internal environments so as to maintain their competitiveness and growth (Sutrisno, Effendy & Prathivi, 2019). Towards that end, organizations need to attain excellence particularly by spearheading innovation. While performance improvement is the end goal, the strategies towards achieving it still require further investigation.

Excellence and performance have been indicated to be determinable by the enterprise resource planning (ERP). A major determiner of organizational success, performance and competitive advantage is information technology (Dhaafri et al., 2016). In the past two decades, ERP has been identified as one of the most significant technological innovations (Dhaafri et al., 2016). Kaaria and Njuguna (2019) described ERP as a non-software installation. ERP is capable of integrating multiple modules as well as managing an entire organization. However, findings on the performance of ERP have been inconclusive hence requiring further research. The inconclusive outcomes were caused by the lack of organizational management practices such as ERP which aids the implementation of ERP (Dhaafri et al., 2016). Other factors include the prevalence of CSFs which affect the performance of ERP such as the ERP package selection, process management, project management, system integration, communication, training and education, and culture. In addition, past studies on ERP had been carried out in unfavorable contexts and environments which affected the findings.

As a management mechanism, OXEL may justify the said inconclusive findings towards achieving high performance levels as well as mediating the correlation between ERP and organizational performance (OP). ERP and organizational excellence (OXEL) may significantly drive the improvement and achievement of the anticipated organizational objectives. Hence, excellence in information technology can produce the best outcomes including improvements in OP (Kocsis, 2019). Additionally, ERP has recently been expanded for the achievement of planning systems for containing the entire organization and for accomplishing overall OXEL via integration (Shiau, 2016). Innovation, customer focus, and personnel commitment are the dimensions of OXEL that can empower ERP towards improving OP.

One of the most prominent strategies for organizational growth and survival is Entrepreneurial Orientation (ENTO) (Dedy et al., 2016). Hence, ENTO has gained considerable research and industrial attention in recent years. Police departments practice an open management style known as entrepreneurial policing which is linked to the individual leadership style as it can be practiced by anyone in the police service irrespective of rank. Several authors have indicated that ENTO has a positive and significant effect on OP. Several other studies suggest that ENTO improves the dynamism of an organization's RBV. Meanwhile, Amin et al. (2016), Rochdi et al. (2017), and Głodowska et al. (2019) did not find any significant correlation between

ENTO and performance. Some authors indicated that a correlation only exists between certain ENTO components and performance measures (Monteiro et al., 2019). Despite numerous studies on the relationship between ENTO and performance, the findings remain questionable. One of the reasons for the inconclusive outcomes is that most of those studies had relied mainly on the opinions of executives from small-sized companies. Another reason is the indirect correlation between ENTO and OP which is affected by 24 organizational elements (Buli, 2017). Additionally, the organization's strategic management characteristics may also play a role in affecting the relationship (Khalid, 2019; Sirén et al., 2017). Due to the inconclusive findings in past studies, a management tool is thus required as a mechanism for explaining the ENTO-OP relationship better. Jelenc et al. (2016) recommended the use of mediating variables such as organizational activities to mediate the relationship between ENTO and OP.

The said relationship can be intervened and mediated by the variable of OXEL. Platin and Ergun (2017) pointed out that only 15 studies had examined the relationship between ENTO and OP using a mediating variable, and that most of the findings had indicated at least a partial mediation effect. This means that the use of a mediating variable could act as a mechanism for explaining the correlation between ENTO and OP. As an organizational activity, OXEL via its elements has the potential to justify the effect of ENTO on OP and to explain how and why the relationship occurs. OXEL and performance are interrelated which means that when OXEL is present, OP will follow suit.

ENTOC is also proposed as a mediating variable in the relationship between ENTO and OP, specifically to justify how and why entrepreneurial traits impact OP. Pettigrew was the first author to formally write on organizational culture in 1979 (Naseem, 2016). Numerous other researchers had examined the effect of organizational culture on the success and quality of systems such as ERP and its relationship with performance (Akanmu et al., 2020; Alghamdi, 2018). Several studies on organizational culture had addressed ENTO (Acosta & Woolfolk, 2016; Riazi, 2018). Despite that, there are very few empirical studies examining the effect of culture on strategy implementation such as ERP and ENTO (Alghamdi, 2018; Amoah et al., 2019; Dhaafri et al., 2016). On top of that, numerous researchers had urged for more studies in the context of developing nations to assess the differences based on country and business sector (Akanmu et al., 2020; Alghamdi, 2018).

## 2. Literature review

### 2.1. Organizational Excellence (OXEL)

Excellence as a term means constantly being in the highest rank of evaluation. Found et al. (2018) cautioned that excellence is unattainable when there is no clear delineation of what it constitutes. The term is often associated with "business" or "organizational" excellence, with both approximating each other in terms of meaning; however, they differ in that OXEL is associated more with public sector organizations whilst business excellence refers more to the private sector counterpart. Azrol (2016) underlined that there is yet any conclusive evidence that business excellence can result in competitive advantage and that the underpinning theory to this notion remains scarce. Although many organizations of today are aiming for excellence, a majority failed to achieve the goal as they lack in-depth understanding of what excellence means. In the rapidly changing business milieu of today, both public and private sector organizations seek performance improvement and competitive advantage. Hence, this current study examines both OP and OXEL. Despite the abundance of studies on OP, there is yet any indication on how excellence can affect performance. Lee (2019) highlighted that OXEL as an academic concept was first introduced by Mahdi et al. (2016).

### 2.2. Enterprise Resource Planning (ERP)

Technological innovations have transformed the current organizational landscape. To maintain their competitiveness and reputation in the corporate milieu which demands high efficiency and effectiveness, it is necessary for organizations to put in place goals and strategies for reducing cost, lessening process framework time, and improving quality. The past two decades have witnessed the rise of the ERP as one of the key organizational transformations in maximizing

organizational efficiency and productivity. Chadhar and Daneshgar (2018) highlighted the prominence of ERP systems in recent years. Among the advantages of this system include cost reduction, competitive advantage, profit improvement, and competitiveness in the global market. The subsequent sections will present literature reviews on the effect of ERP systems on organizational effectiveness, efficiency, productivity, and performance.

Organizations rely on an array of technological systems and techniques for improving their services, products and business processes. Rising competition in the global market and rapid advancements in information technology (IT) have forced many organizations to adopt cutting-edge technological systems so as to remain competitive (Amalnik & Ravasan, 2018), one of which is the ERP (ERP). The ERP has been experiencing substantial market growth for the past two decades. Wanyoike (2017) pointed out that the ERP's revenue in the global market was \$65 billion in 2008, \$61 billion in 2009, and \$65 billion in 2010. The ERP was originally and fundamentally structured in the 1950s and 1960s back when computers first became a business (Ekren et al., 2019). Its initial application entailed the automation of manual tasks including invoicing, recording, and bookkeeping. According to the authors, ERP is a standardized software package comprising a number of modules for explicit functions.

### **2.3. Entrepreneurial Orientation (ENTO)**

Despite being around for decades, the term “entrepreneurship” has yet to have any exact definition (Jamil & Obeidat, 2019). In numerous literatures, the term is defined as “the creation of enterprise”, “the creation of innovation”, “the creation of employment”, “the creation of growth”, and “the creation of value”. Additionally, in a keyword analysis of the definitions of entrepreneurship, the authors found 18 keywords in literatures which were used at least five times. The authors ultimately defined entrepreneurship based on the delineation given by Okangi (2019): “Entrepreneurship is a process of creating value by bringing together a unique package of resources to exploit an opportunity.” Historically, the term was demarcated by Jessop (2019) as: “... a deal we make related to a certain type of behaviour including initiative, organization and re-organization of socio-economic mechanisms and the acceptance or risks and failure.”

Entrepreneurial activities are deemed crucial by organizations but in the universal economy of today, entrepreneurship has gained even more significance for the attainment of success, OP and sustainable competitive advantage (Gupta & Dutta, 2018; Khalid, 2019). Magaji et al. (2017) asserted that entrepreneurship is one of the fastest growing fields in management literature particularly in recent decades. Scholars and popular media have both suggested the significant and positive role of entrepreneurial activities in improving performance (Amoah et al., 2019).

### **3. Theoretical framework**

The framework of this study is developed based on the aforementioned literature review that touched upon the relationships between the variables under study. Several research gaps were identified which prompts further investigation on the relationship between the proposed variables. The previous chapter discussed the direct relationships between the variables and performance separately; other relationships between the independent variables, the mediating variable and the dependent variable were also addressed. Based on the literature review, the combined effects of ERP, ENTO and OXEL on performance have not been thoroughly investigated.

In stark contrast to OP, the role of OXEL has been mostly ignored. The correlation between OXEL and OP has not been properly studied and thus remains unclear (Dhaafri et al., 2016; Lee, 2019). Some of the existing studies, however, had indicated a positive and significant correlation between the variables (Dawabsheh et al., 2019; Dhaafri et al., 2016; Lee, 2019). In view of the limited studies and inconclusive findings, there is hence a research gap that needs to be addressed. This present study therefore sets out to fill the said research gap and add to the limited body of knowledge on the subject, particularly in the context of developing nations such as the UAE. The framework of



this current study is constructed based on the work of Dhaafri et al. (2016) where OXEL is employed as a mediating variable that facilitates performance achievement via leadership.

In the rapidly changing milieu of today, there is a need for powerful organizational systems that can enable process integration. Hence, information technology is considered a significant factor in achieving OP, success, and competitive edge. As asserted by numerous researchers, an ERP system is one of the most crucial technological innovations in recent years (Dhaafri et al., 2016) due to its role in improving OP and adding value to organizations (Kanchana & Sri, 2018; Sislian & Jaegler, 2020). However, it was also found to have a negative effect on performance. Such inconclusive outcomes caused by certain CSFs present a research gap for further examination. In the present study, the correlation between ERP and OP as mediated by OXEL may justify the reason and means for the occurrence of the relationship. The work of Chen et al. (2016) is utilized in this current study in order to incorporate ERP in the study framework.

ENTO is deemed as a crucial strategy for survival and growth (Dedy et al., 2016). Entrepreneurial-oriented managers and leaders are more likely to have a positive effect on performance than those who are not. Despite the numerous studies on the correlation between ENTO and OP, the findings are inconsistent. Such varying outcomes are argued to be the result of the non-incorporation of a mediating variable (Jelenc et al., 2016; Platin & Ergun, 2017). OXEL has been suggested to have the mediating power to explain the relationship. In addition, entrepreneurial traits entail activities that are creatable via the diffusion of entrepreneurial cultural characteristics. In view of this, an entrepreneurial culture hence plays an important role in increasing entrepreneurial awareness. The proposed framework for this present study is based on the work of researchers which had used ENTO as an independent variable affecting OP via the mediating role of OEX.

In the ever-shifting environment of today, it is a necessity for organizations to possess the abilities to construct, incorporate, and reconfigure internal competencies (Rodrigues et al., 2020). Hence, organizations build and enhance their competencies to gain the much needed competitive edge by leveraging on various resources including information system towards fulfilling the needs of customers and competing with other industry players, improving customer service, reducing costs, and lessening cycle time (Rodrigues et al., 2020). One of the most prominent systems for such purpose in recent years is ERP (ERP) (Chadhar & Daneshgar, 2018). ERP facilitates organizations in facing rapid technological revolutions and addressing fluctuating expectations via the provision of well-timed, accurate, and cohesive information that improves organizational decision making (Rouhani & Mehri, 2018). ERP is deemed as a complex system owing to its widely integrated modules and business processes which automate an organization's information flow, financial resources and materials using a joint database. Despite that, its application and fitting changes in the organizational process can substantially improve receptiveness, flexibility, cost, quality, and performance. Based on the review of several ERP literatures, many studies have been carried out on the correlation between ERP systems and OP. The findings, however, were rather inconsistent. A majority of the studies found that ERP systems are beneficial for organizations and can enhance OP (Dhaafri et al., 2016), financial performance (Rodrigues et al., 2020; Sislian & Jaegler, 2020), non-financial performance (Manthou et al., 2016), customer service and communications as well as lessen inventory. However, several others indicated the negative effect of ERP systems on OP (Kanchana & Sri, 2018) owing to a number of precarious factors including culture and the lack of training, education as well as top management support and commitment. Past studies pointed out that ERP commonly fail in the area of financial performance for private organizations, and the areas of operational efficiency and cost effectiveness for public organizations. Hence, the implementation of ERP is projected to be more successful in the public sector than in the private sector because of the aforementioned factors and other key success factors including the availability of funds, top management

support, and advanced technologies. Grounded upon the aforesaid arguments and past literatures, the hypothesis below is hence proposed:

**H1:** Enterprise resource planning (EPR) has significant impact on the organizational performance (OP).

Entrepreneurial Orientation (ENTO) entails the practices, processes, behaviors and decision making styles which enable an organization to enter into new markets on account of its existing or new products and services (Jelenc et al., 2016; Khalid, 2019). Arham et al. (2017) suggested the importance of ENTO for organizational growth and profitability. Jelenc et al. (2016) listed out three dimensions of ENTO namely risk taking, innovativeness and proactiveness and added the dimensions of aggressiveness and autonomy to the list. Entrepreneurship literatures mostly agree that the ENTO dimensions of innovativeness, proactiveness and risk-taking have a positive effect on OP (Gupta & Dutta, 2018; Jelenc et al., 2016). The relationship between ENTO and performance can be measured using two approaches. Some studies investigated the effect of ENTO in totality and its correlation to OP, whilst some others assessed the effect of each dimension individually (Magaji et al., 2017). This current study examines the second approach in forming the hypotheses on the correlation between ENTO and OP. A majority of the studies found that ENTO positively affects OP whilst the remaining few indicated otherwise. ENTO receives significant research attention owing to its impact on the general performance of public and private organizations. Yet, its impact on the performance of public organizations has not been properly examined as evidenced by the lack of literature on the matter. A thorough review of literatures on entrepreneurship revealed that most researchers agree that increased ENTO results in increased OP, profitability and competitive advantage (Semrau et al., 2016). Several others, however, did not find a positive correlation between ENTO and OP. This inconsistency in findings indicates the need for further investigation on the said relationship. Hence, this current study proposes the hypothesis below:

**H2:** Entrepreneurial Orientation (ENTO) has a significant impact on the organizational performance (OP).

Despite the availability of numerous literatures on ERP, there is yet any unanimous definition of the concept. Most studies described ERP as an organization-wide application package incorporated to facilitate various business functions (Menon, 2019), an information system that incorporates all types of businesses, a cutting-edge technological solution system that integrates key organizational information and a foundation for best management processes and practices (Li et al., 2017). As an information technology mechanism, ERP offers numerous organizational benefits that lead to improved efficiency, continuous competitive advantages, and increased OP. As there is yet any study on the effect of ERP on OXEL, this present study hence attempts to investigate the relationship. Thus, the hypothesis below is proposed:

**H3:** Enterprise resource planning (EPR) has a significant impact on organizational excellence (OEXL).

Ghosh and Biswas (2017) argued that following the globalization of organizational practices and operations, SMEs have managed to successfully apply and utilize entrepreneurship and marketing strategies for achieving business excellence and best performance. Dawabshah et al. (2019) also highlighted the need for organizations to focus more on the ENTO dimensions of innovativeness, proactiveness, risk-taking, competitive aggressiveness as well as autonomy via the development of prospective capabilities and strategies for increasing business excellence, competitiveness and competitive advantage. Dhaafri et al. (2016) investigated the reasons why some new ventures excel whilst others fail, and attributed the inquiry to the core of



entrepreneurship research. The authors also highlighted ENTO characteristics that lead to performance excellence, and that ENTO positively affects OP. Fok (2016) suggested that organizational leaders should drive employee creativity and learning as well as improve knowledge management in order to achieve sustainable innovation excellence. Meanwhile, the author asserted that entrepreneurship is a precursor to sustainable competitive advantage and excellence. Based on the discussion above, ENTO is clearly correlated to OXEL. Hence, this study proposes the hypothesis below:

**H4:** Entrepreneurial Orientation (ENTO) has a significant impact on organizational excellence (OEXL).

OXEL and OP are the key indicators of organizational success, achievement, competitiveness, progress and development. Their interrelation means that one affects the other. The implementation of OXEL along with innovation can result in performance excellence. EFQM delineated excellent organizations as those with a 60 percent and above performance. Lee (2019) defined excellence as an exceptional level of performance. In terms of business performance, the focus is on how organizations attain business excellence and maintain competitive advantage (Fok, 2016). According to Wahab and Yaakub (2019), OXEL is an all-inclusive approach that improves OP. Dawabsheh et al. (2019) substantiated the significant relationship between OXEL and business performance. Additionally, in an empirical study on 200 Turkish companies, Dhaafri et al. (2016) proved the significant effect of OXEL on OP.

**H5:** Organizational excellence (OXEL) has a significant impact on OP.

ERP systems facilitate the integration and automation of corporate cross-functions including procurement, inventory, distribution, project management and finance (Menon, 2019) as well as the improvement of business performance (Shiau, 2016). In the past several years, there has been an extension of ERP towards attaining a planning system for containing the entirety of an organization i.e. from marketing to product development, and for accomplishing overall OXEL via integration (Shiau, 2016). Additionally, the legacy systems lack the ability to integrate different organizational functions when the core system like ERP demands that all the components work together towards achieving an excellent performance (Menon, 2019). Dhaafri et al. (2016) highlighted that the usage of Six Sigma together with ERP leads to best business practices and ultimately excellent business processes. Kothandaraman and Kamalanabhan (2018) asserted that a mediator can elucidate the correlation between the independent and dependent variables i.e. the examination of the indirect effect and its comparison to the direct effect. As there were inconsistent findings with regards to the direct effect of ERP on OP, the focus is shifted on examining the indirect effect. Kothandaraman and Kamalanabhan (2018) pointed out that the practice of OXEL facilitates organizations in achieving an excellent growth. Hence, excellence in information technology is mainly for generating the best outcomes. The inconsistent findings with regards to the relationship between ERP and OP can hence be explained by OXEL as the mediating mechanism.

The relationship between ENTO and OP has been extensively studied and corroborated. Subsequently, there is now a need to determine the effect of ENTO on performance and the mechanism that drives that effect. In the context of this present study, OXEL is proposed as the mechanism for mediating the relationship between ENTO and OXEL. As discussed earlier based on past studies, the relationships between ENTO and OXEL as well as OXEL and OP have been indicated to be significant. Additionally, the indirect relationship between ENTO and OP has been proven to be more prominent than the direct relationship. In short, ENTO does not have a direct effect on OP, but is driven by certain mediating elements. Jelenc et al. (2016) proposed

organizational activities as the mediators that affect the relationship between ENTO and OP. According to Platin and Ergun (2017), Scopus lists only 15 studies on the mediating effect in the relationship between ENTO and performance.

**H6:** Organizational excellence (OXEL) mediates the relationship between entrepreneurial orientation (ENTO) and organizational performance (OP).

**H7:** Organizational excellence (OXEL) mediates the relationship between enterprise resource planning (EPR) and organizational performance (OP).

#### 4. Methods and measures

We employed both statistical techniques in this study to analyze the data. There are two different types of statistical techniques namely: 1) descriptive statistics, and 2) inferential techniques. SPSS v.22.0 was used to attain the descriptive statistics. We then used the Partial Least Square Structural Equation Modeling to perform the inferential analysis by using Smart PLS 3.0 (Hafeez, M. Basheer et al., 2018; Hameed et al., 2018; Siam Basheer et al., 2019).

We distributed 340 questionnaires among the selected respondents, out of which 260 were returned indicating a response rate of 76.47%. A satisfactory response rate is 30% as recommended by Ramayah et al. (2018). For multivariate analysis of data in social sciences, the PLS-SEM is the most popular technique, but its implementation has recently spread to the education sector as well. For the investigation of present relations between the latent and observed variables, the different data analysis methods are referred to as the SEM group. Specifically, it provides easy understanding regarding certain phenomena which cannot be observed openly such as intentions, characteristics, attitudes, perceptions and abilities which are linked to educational-based research (Singh & Prasad, 2018). The measurement of the study was derived from previous studies. The 12-item scale for organizational performance was taken from Al-Dhaafri et al. (2016), whilst the 12-item unidimensional scale for the ERP system was derived from Jenatabadi et al. (2013). Organizational excellence is used as a unidimensional construct (Antony & Bhattacharyya, 2010). The measurement of entrepreneurial orientation was adapted from prior studies by Kantur (2016) and Cho and Lee (2018).

#### 5. Results

The linear regression and factor analysis are integrated in general by the structural equation modeling (SEM). To perform the statistical analysis using the SEM framework, we used two different approaches: the first one is the partial least square structural equation modeling (PLS-SEM) whereas the second is the covariance-based SEM (CB-SEM). We applied the CB-SEM approach to carry out the statistical analysis by using different software such as LISREL, MPLUS and AMOS. All types of SEM have different assumptions, objectives, and estimation techniques.

There are several reasons for using the PLS technique in this study: firstly, it is very effective for the complex models and secondly, there are no stringent criteria in PLS-SEM for residual distribution and error term. This technique can also be used for formative and reflective measurement models following the suggestions of Henseler et al. (2016). Mediation and moderation effects can be estimated efficiently using the PLS-SEM. It can estimate the hierarchical constructs with different or complex models that have moderation or mediation effects. The PLS provides comprehensive and valid results in comparison to other techniques which require a number of separate analyses (Singh & Prasad, 2018). Hence, the present study employs the PLS over the CB-SEM technique for data analysis.

In PLS analysis, the first step entails the assessment of the outer model for the estimation of the indicator loadings of specific constructs. A reliability test was hence carried out to measure the

construct of the model and the consistency of the instrument. In addition, the ability of the respective instruments for construct measurement was also assessed by performing a validity test (Hatamifar et al., 2018). The nature of the relationship between the latent and observed variables was also determined via the measurement model. Consequently, we established the construct validity with the estimation of the discriminant, content, and convergent validity of the instrument (Hair et al., 2017; Henseler et al., 2016; Hult, G. T. M. Hair & Ringle, 2016). The measurement model of the current study is shown in the Figure 1.

Subsequently, by using the PLS technique to assess the reliability of the items, we computed the outer loadings of the individual constructs. Generally, items with loadings of between 0.40 and 0.70 are deemed as well preserved, although loadings equal to or greater than 0.70 are deemed more suitable (Henseler et al., 2016). According to Naala et al. (2017), item loadings of between 0.81 and 1.00 are defined as very strong; loadings of between 0.51 and 0.80 are moderate, whilst loadings of between 0.51 and 0.99 are very good (Hameed et al., 2018; Henseler, 2018; Hult, G. T. M. Hair & Ringle, 2016). However, for mutual relations, the item loadings should be greater than 0.70 (Ong & Puteh, 2017). The outer loadings of current model is shown in the Table 1.

Convergent validity is defined as the degree to which the statistical analysis of two different measures is actually related to each other theoretically. Initially, the item loadings for all the items were analyzed, and the factor loadings obtained were higher than 0.50 which is consistent with the recommendations of Ong and Puteh (2017) who suggested a minimum value of 0.50 for item loadings. Next, we assessed the composite reliability which is basically the degree to which the reliability of the items specifies the basic construct. In the present study, all the constructs have CR

Figure 1. Measurement model.

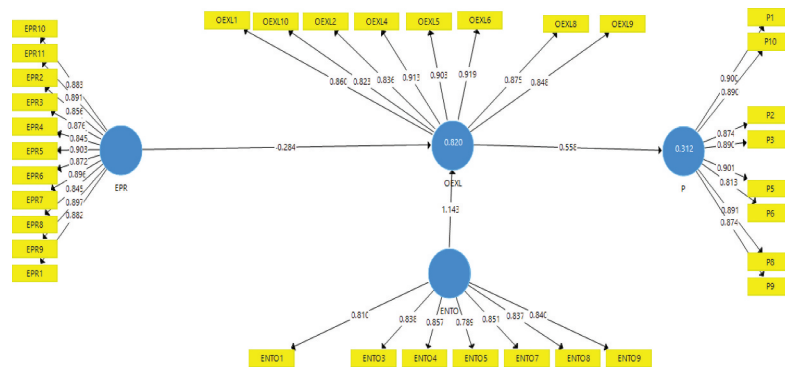
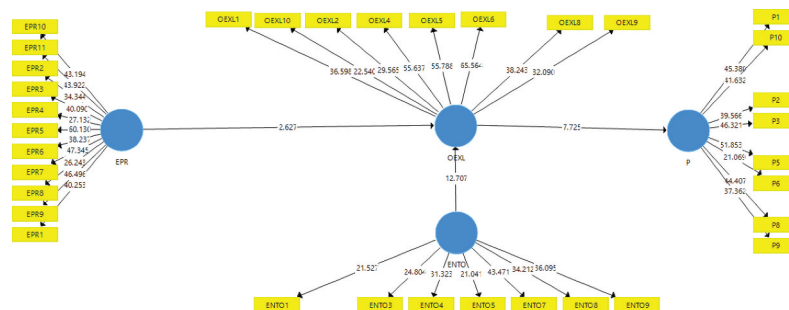
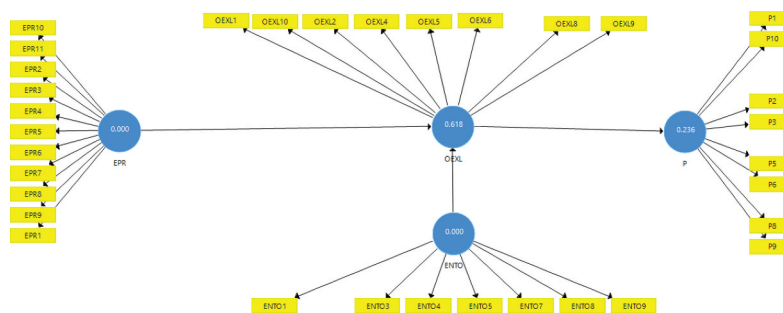


Figure 2. Structural model.



**Figure 3. Blindfolding.**



values of between 0.872 and 0.968 which are greater than the minimum acceptable level of 0.70 (Ong & Puteh, 2017; Zahra, Hameed, Fiaz & Basheer, 2019; Hult, G. T. M. Hair & Ringle, 2016; Hair et al., 2017; Henseler et al., 2016).

After that, we calculated the level of common variance among the indicators which is referred to as the average variance extracted (AVE). According to Hult, G. T. M. Hair and Ringle (2016), Ong and Puteh (2017), and Singh and Prasad (2018), the value of AVE must be equal to or greater than 0.50. In the present study, the values of AVE were between 0.512 and 0.834 which confirms the convergent validity. The CR values are presented in Table 2 for the attainment of the second-order construct.

Discriminant validity indicates whether the measure is different from other measures. The construct validity of MM was confirmed by discriminant validity by taking the AVE square root to correlate to the latent construct. The value of AVE must be equal to or greater than 0.50. The square root value of AVE should be higher than the correlation values of the latent constructs. The results of the discriminant validity is shown in Table 3.

After the estimation of the outer model, we then estimated the inner model entailing the path coefficients, t values and hypothesis testing. The inner model or structural model of the current study is shown in the Figure 2. In the present study, we also applied the bootstrapping procedure by using 500 samples for the determination of the significance of the path models to determine the relations between the variables. The results of the direct paths are shown in Table 4. The results indicate that all the direct paths namely ENTO -> OEXL, ENTO -> P, EPR -> OEXL, EPR -> P, and OEXL -> P are significant at a p value of less than 0.05.

The results of the mediation analysis are shown in Table 5. The findings revealed that all the mediation paths namely ENTO -> OEXL -> P, and EPR -> OEXL -> P are significant at a p value of less than 0.05.

For the assessment of the structural model, the value of R-square was determined as the most suitable measure (Hair & Sarstedt, 2019). For the endogenous construct, the value of R-square describes the strength of the model and defines the proportionate change by the exogenous variable in the endogenous variable of the model. According to Mikalef and Pateli (2017), the R-square values of 0.19, 0.33 and 0.67 respectively denote a small, medium and large amount of variance in the endogenous variable. The results of R-square are shown in Table 6.

Lastly, we determined the predictive relevance of the model to check the model's quality (Sarstedt, M. Hair & Sarstedt, 2019). We employed the cross-validated redundancy measure ( $Q^2$ ) to check the predictive quality of the model. It is basically a sampling technique which describes

**Table 1. Outer loadings**

	<b>ENTO</b>	<b>EPR</b>	<b>OEXL</b>	<b>P</b>
ENTO1	<b>0.810</b>			
ENTO3	<b>0.838</b>			
ENTO4	<b>0.857</b>			
ENTO5	<b>0.789</b>			
ENTO7	<b>0.851</b>			
ENTO8	<b>0.837</b>			
ENTO9	<b>0.840</b>			
EPR10		<b>0.883</b>		
EPR11		<b>0.891</b>		
EPR2		<b>0.856</b>		
EPR3		<b>0.876</b>		
EPR4		<b>0.845</b>		
EPR5		<b>0.903</b>		
EPR6		<b>0.872</b>		
EPR7		<b>0.896</b>		
EPR8		<b>0.845</b>		
EPR9		<b>0.897</b>		
OEXL1			<b>0.860</b>	
OEXL10			<b>0.823</b>	
OEXL2			<b>0.836</b>	
OEXL4			<b>0.913</b>	
OEXL5			<b>0.903</b>	
OEXL6			<b>0.919</b>	
OEXL8			<b>0.875</b>	
OEXL9			<b>0.848</b>	
P1				<b>0.900</b>
P10				<b>0.890</b>
P2				<b>0.874</b>
P3				<b>0.890</b>
P5				<b>0.901</b>
P6				<b>0.813</b>
P8				<b>0.891</b>
P9				<b>0.874</b>
EPR1		<b>0.882</b>		

that  $Q^2 > 0$  indicates the predictive relevance of the endogenous construct. The results of Q-square are shown in [Table 7](#). The blindfolding procedure is mapped in [Figure 3](#).

Furthermore, for the determination of predictive relevance, we used the blindfolding method via the PLS software. For the estimation of the parameters, we omitted several cases from the analysis (Hameed et al., 2018; Henseler et al., 2016; Sarstedt, M. Hair & Sarstedt, 2019).

## 6. Discussion

Despite extensive research on the subject matter, several studies pointed out that the relationship between ENTO and OP is still inconclusive. Many writers found that the three dimensions of ENTO namely

**Table 2. Reliability**

	<b>Cronbach's Alpha</b>	<b>rho_A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
ENTO	<b>0.926</b>	<b>0.933</b>	<b>0.940</b>	<b>0.692</b>
EPR	<b>0.970</b>	<b>0.971</b>	<b>0.973</b>	<b>0.769</b>
OEXL	<b>0.955</b>	<b>0.958</b>	<b>0.962</b>	<b>0.762</b>
P	<b>0.958</b>	<b>0.963</b>	<b>0.965</b>	<b>0.774</b>

**Table 3. Validity**

	<b>ENTO</b>	<b>EPR</b>	<b>OEXL</b>	<b>P</b>
<b>ENTO</b>	0.892			
<b>EPR</b>	0.874	0.877		
<b>OEXL</b>	0.865	0.714	0.873	
<b>P</b>	0.584	0.554	0.558	0.880

**Table 4. Direct results**

	<b>(O)</b>	<b>(M)</b>	<b>(STDEV)</b>	<b>( O/STDEV )</b>	<b>P Values</b>
ENTO -> OEXL	1.143	1.127	0.090	12.707	<b>0.000</b>
ENTO -> P	0.638	0.632	0.086	7.383	<b>0.000</b>
EPR -> OEXL	0.284	0.266	0.108	2.627	<b>0.004</b>
EPR -> P	0.159	0.148	0.061	2.598	<b>0.005</b>
OEXL -> P	0.558	0.562	0.072	7.725	<b>0.000</b>

**Table 5. Mediation**

	<b>(O)</b>	<b>(M)</b>	<b>(STDEV)</b>	<b>( O/STDEV )</b>	<b>P Values</b>
<b>ENTO -&gt; OEXL -&gt; P</b>	0.638	0.632	0.086	7.383	<b>0.000</b>
<b>EPR -&gt; OEXL -&gt; P</b>	0.159	0.148	0.061	2.598	<b>0.005</b>

innovativeness, proactiveness, and risk-taking are positively related to organizational performance (Jelenc et al., 2016; Kranich & Wald, 2018; Wales, 2016). However, others reported contrasting results (Semrau et al., 2016). Furthermore, the effect of ENTO on the performance of public organizations was not extensively investigated in the literature. In order to solve this inconsistency, other factors should be considered in the examination of this relationship (Semrau et al., 2016). In other words, in this current era of fast-paced technological advancement and globalization, organizations should be more enterprising in order to improve their development, growth and survivability (Kim et al., 2018).

The findings reveal that the ENTO is significant positive relationship with the OXEL. The results indicate that the ENTO in SMEs helps them in achieving the excellence. The results are constant



**Table 6. R-square**

	R Square
OEXL	0.820
P	0.312

**Table 7. Q<sub>2</sub>**

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
ENTO	1519.000	1519.000	
EPR	2387.000	2387.000	
OEXL	1736.000	663.644	0.618
P	1736.000	1325.990	0.236

with the prior findings of Aslam et al. (2020). This result indicates the importance of ENTO in increasing and enhancing the overall OP in police departments. Entrepreneurial traits and activities are important for organizations to survive and grow (Semrau et al., 2016). However, the findings in some studies (Boohene, 2018; Rochdi et al., 2017) do not support the positive impact of ENTO on OP, whilst the majority of existing studies support otherwise. These positive results concluded and confirmed that organizations with high entrepreneurial activities produce better performance when compared to organizations with low entrepreneurial activities.

The relationship between the ERP and OXEL is also positive and significant. The findings confirm the argument broached in the research that the SMEs with ERP installed are more towards excellence than the those with no little attention towards ERP. The findings are in line with the prior findings of Al-Dhaafri et al. (2016). The logical effect of OXEL as a mechanism for explaining the relationship between ENTO and OP was confirmed. In addition, the result of this study reported a direct positive and significant effect of ENTO on OP. Accordingly, this positive effect and significance can be increased if explained more by the practices of organizational excellence such as innovation, customer focus and personnel commitment.

The findings of the study have provided support to the hypothesized relation that the ENTO places a positive and significant impact on the performance of SMEs in Pakistan. The positive sign indicates that the ENTO enhances the performance of SMEs. The findings of the current study have provided support to the earlier findings of Jelenc et al. (2016), Kranich and Wald (2018), Wales, (2016) . Similarly, the ERP is also in positive and significant relationship with the performance of SMEs. The findings of the relationship between the EPR and performance of SMEs in Pakistan are in line with the Dawabsheh et al. (2019), and Wahab and Yaakub, (2019) Finally, the organizational excellence is also in positive and significant relationship with the performance of SMEs in Pakistan.

The current study is among the pioneer to introduce organizational excellence as a mediator between the entrepreneurial orientation and performance, and between the enterprise resource planning and performance of SMEs in Pakistan. The findings indicate that the organizational excellence explain s the relationship between the entrepreneurial orientation, enterprise resource planning and performance of SMEs in Pakistan. OXEL has been considered as a holistic approach for improving organizational performance (Wahab & Yaakub, 2019) with a significant impact on business performance (Dawabsheh et al., 2019). In this study, due to the inconclusive results of ERP and ENTO as well as their relationships with OP, OXEL was proposed as the mechanism that can explain those relationships in

a better way. In other words, OXEL as an outstanding practice may help organizations in achieving the best results in OP by implementing rare practices such as ERP and ENTO.

A comprehensive literature review indicates that inconsistent findings exist concerning EO and ERP's effects on organizational performance. The present study suggests that in order to overcome such inconsistencies in research outcomes, an organizational excellence variable can be integrated into this research to ensure the effectiveness of EO and ERP. This framework may serve as a yardstick to empirically investigate the organizational performance determinants in the recent technological period.

In conclusion, the present study was conducted to extend the existing knowledge concerning the implications of ERP, ENTO and OXEL. In this study, the research model presents a unique and unconventional theoretical framework that may be employed in future studies for measuring the effectiveness of ERP, ENTO, and OXEL. The proposed framework in this research is unique and original because it integrated the role of organizational excellence in interpreting the effects of ENTO and ERP on the organization's overall performance. The principal reason for proposing this framework was to overcome the issue of inconsistent outcomes, in terms of ENTO and ERP effects on organizational performance, as well as to explain the reason why desired outcomes could not be achieved through these strategies. Thus, the proposed research framework can effectively be used as a guideline to conduct an empirical research on the relationship between overall organizational performance and knowledge based organizational capabilities.

## 7. Limitations and recommendation

The current study provides many future research opportunities such as;

- (1) a cross-sectional approach is adopted in this study to collect data during a certain point of time. However, a longitudinal research may also be conducted in future studies to overcome the complexity of the joint effects of ENTO and ERP strategies on the organizational performance and organizational excellence. In this context, a longitudinal research would allow to observe the complex relationship between the variables over a longer period and would also specify the development of variables over a period of time.
- (2) A prior research design limitation does not allow the researcher to investigate beyond the dynamic effects and relationships among the variables. Therefore, a case-study approach is relatively better to observe ENTO and ERP's effects on organizational performance. In addition, this approach allows the researcher to explore relationships among complex variables and provide useful insights to the researchers regarding success factors.
- (3) Although organizational excellence is expected to significantly contribute to specify the potential effects of ENTO and ERP on organizational performance, the key role of entrepreneurial culture must also be observed while describing the causal relationship among variables. It thus implies that in order to measure the effectiveness of ENTO and ERP strategies, their ability of creating an organizational culture must be observed, i.e. a culture which accepts failure and supports innovation. However, in case of failure to develop such culture, a huge resistance may occur that hinders improvement and cause risks. Simply put, an organization can only reach excellence, and in turn superior organizational performance when it supports and embraces technology-based innovation and develops an entrepreneurial culture in the organization which can anticipate and support future business opportunities.

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